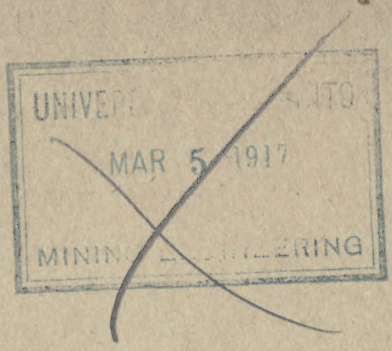

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THE MINING WORLD INDEX

of Current Literature

VOL. X LAST HALF YEAR 1916

By GEO. E. SISLEY
Associate Editor
Mining and Engineering World

An International Bibliography of Mining and the Mining Sciences Compiled and Revised Semi-Annually from the Index of the World's Current Literature Appearing Weekly in "Mining and Engineering World"

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PREFACE

As in previous volumes the world's literature on mining, metallurgy and kindred subjects appearing in periodical magazines published in America, Europe, Africa and Australia, have been arranged in classified form. These articles cover mining, engineering, metallurgy, geology, mineralogy, etc. There is also included papers read before institutes and affiliated engineering and technical societies, as well as reports of Federal and State Geological Surveys and Mining Bureaus at home and abroad, and new books. By the system of cross-indexing adopted what is wanted on any mining or affiliated subject is readily found. A brief digest of all articles is given so that a general idea of the article may be obtained. Where more than one author occurs the first-named appears in alphabetical arrangement; the other or others will be found by referring to the authors' index.

In the search for some particular article covering a certain subject it should be remembered that when reference of any importance is made in that article to more than one subject, the article will be indexed under the different subjects. Careful thought is given to the arrangement of subjects and the classifying of same, and the author would be glad to receive any criticism or suggestion, the adoption of which would make the book of more value to the busy man.

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CONTENTS

PART I.

Geology and Mineralogy.

Chapter 1.—Geology, Ore Genesis, Mineralogy, Petrography..... 1

PART II.

Ores and Mineral Products.

Chapter 2.—Gold, Silver, Platinum..... 13

Chapter 3.—Copper 30

Chapter 4.—Lead, Zinc, Cadmium..... 40

Chapter 5.—Iron and Steel..... 52

Chapter 6.—Alloys, Antimony, Manganese, Molybdenum, Tungsten, etc. 58

Chapter 7.—Tin, Nickel, Cobalt, Aluminum..... 66

Chapter 8.—Miscellaneous Metals and Ores..... 70

Mercury; Osmium; Radium; Ores Unclassified.

Chapter 9.—Fuels and By-Products..... 72

Coal; Coke; Peat; Miscellaneous.

Chapter 10.—Petroleum, Natural Gas, Etc..... 85

Chapter 11.—Structurals and Ceramics..... 90

Brick and Tile; Cement; Clays and Ceramics; Lime; Concrete; Sand and Gravel; Stone.

Chapter 12.—Other Non-Metals 94

Abrasives; Acids; Arsenic; Asbestos; Feldspar; Fertilizers; Fluorspar; Gems; Graphite; Gypsum; Magnesite; Mica; Nitrates; Potash; Pyrites; Quartz; Salines; Sulphur; Talc and Soapstone.

PART III.

Technology.

Chapter 13.—Mines and Mining (a).....100

Prospecting; Surveying and Drafting; Ore Reserves; Drilling and Boring; Sampling; Explosives and Blasting; Shafts and Shaft Sinking; Lighting; Telephones and Signaling; Pumps and Pumping; Tunnels and Tunneling; Mine Waters; Mine Gas; Ventilation; Supports; Hoists and Hoisting; Dredging; Power Shovels and Excavators; Hydraulic Mining; Mining Costs; Mining Miscellany.

Subject Index Page xx.

CHAPTER 14.—Mines and Mining (b) 121

Transport and Haulage; Storage; Accidents; Safety; Rescue and First-Aid; Sanitation; Labor and Management; Sociological; Accounts and Bookkeeping.

CHAPTER 15.—Mines and Mining (c) 129

Production of Metals and Metal Ores, Non-Metals, etc.

CHAPTER 16.—Mill and Milling 137

Sampling; Crushing; Grinding, etc.; Flotation; Concentration; Amalgamation; Cyaniding; Briquetting; Chlorination; Milling Costs; Mill Miscellany.

CHAPTER 17.—Chemistry and Assaying 150

Chemistry; Electrochemistry; Assaying; Analysis.

CHAPTER 18.—Metallurgy 156

Electrometallurgy; Thermic Metallurgy; Hydrometallurgy; Metallurgy General.

CHAPTER 19.—Power and Machinery 166

Electricity; Compressed Air; Combustion Engines; Steam and Steam Engines; Gas Producers; Producer Gas; Miscellaneous.

PART IV.

MISCELLANEOUS.

CHAPTER 20.—Miscellaneous 178

Costs; Testing; Waste; Metallography; Law; Legislation; Taxation; Conservation; Government Ownership; Historical; Schools and Societies; Financial; Miscellaneous General.

PUBLICATIONS INDEXED

INCLUDING PERIODICALS AND BOOKS; TRANSACTIONS, BULLETINS, ETC., OF SCHOOLS, SOCIETIES AND GOVERNMENT BUREAUS.

A

Acetylene Journal.
African World.
Alabama Geological Survey.
Alaska & Northwest Mining Journal.
All-Alaska Review.
Allianza, Mexico.
American Ceramic Society.
American Chemical Society.
American Electrochemical Society.
American Fertilizer.
American Foundrymen's Association.
American Industries.
American Institute of Chemical Engineers.
American Institute of Electrical Engineers.
American Institute of Metals.
American Institute of Mining Engineers.
American Iron & Steel Institute.
American Journal of Science.
American Metal Society.
American Mining Congress.
American Museum of Safety.
American Peat Society.
American Portland Cement Manufacturers.
American Railway Engineering Association.
American Society of Civil Engineers.
American Society of Engineering Contractors.
American Society of Mechanical Engineers.
American Society of Naval Engineers.
American Wood Preservers' Association.
Annales de Mines, France.
Anode.
Argentine Sociedad Cientifica.
Arizona Mine Inspector.
Arizona State Bureau of Mines.
Arizona State Geological Survey.
Arkansas Bureau of Mines.
Arkansas Geological Survey.
Association of Engineering Societies.
Association of Mining Electrical Engineers, England.
Association of Railway Electrical Engineers.
Atti del Colegro degli Ingenerio Ed Architetti.
Australian Coal & Iron Trade Review, Sydney.
Australasian Institute of Mining Engineers.
Australian Mining Standard, Melbourne.

B

Belgium Annales des Mines.
Berg, Hütten & Salinenwesen in preusischen Staate, Germany.
Berg- und Huttenwesen, Germany.
Berg- und Hüttenmännische Rundschau, Kattowitz, Germany.
Berg und Hüttenm, Jahrb, Leoben-Pribram.
Bergbau, Germany.
Bergrecht, Germany.
Bergwerks-Zeitung, Germany.
Bergwerkschaftliche Mitteilungen, Germany.
Birmingham Metallurgical Society, England.
Bitumen, Germany.
Black Diamond.
Bolivia Geological & Geographical Boletin.
Braunkohle, Germany.
Brick & Clay Record.
British Columbia Bureau of Mines.
British Columbia Mining Exchange & Engineering News, B. C.
British Guiana Institute of Mines and Forests.
British Institute of Metals.

C

Cairo Scientific Society.
California Derrick.
California Miners' Association.
California State Mining Bureau.
Canada Department of Mines.
Canada Geological Survey.
Canadian Engineer.
Canadian Mining Institute.
Canadian Mining Journal.
Cassier's Magazine.
Cement.
Centralblatt der Hütten & Walzwerke, Berlin, Germany.
Chemical Engineer.
Chemical Metallurgical & Mining Society of South Africa.
Chemiker-Zeitung, Germany.
Chemiker & Techniker-Zeitung, Austria.
Chemist-Analyst.
Chile Institute de Ingenieros.
Cleveland Engineering Society.
Coal Age.
Coal Mining Institute of America.
Coal Trade Bulletin.
Coal & Coke Operator.
Colliery Guardian, London.
Colorado Geological Survey.
Colorado School of Mines.
Colorado Scientific Society.
Colorado State Bureau of Mines.
Colorado University.
Colombia Department de Antioquia.
Columbia School of Mines Quarterly.
Compressed Air Magazine.
Concrete-Cement Age.
Connecticut State Geological & Natural History Survey.
Cornwall Mining Association and Institute, England.
Cuerpo de Ingenieros de Minas del Peru, Peru.

D

Der Erzbergbau, Germany.
Deutsche Technik, Germany.
Die Fördertechnik, Germany.
Domestic Engineering.

E

Economic Geology.
Edinburgh Geological Society, Scotland.
Eisen Zeitung, Germany.
El Economista Mexicana, Mexico.
El Petrolero Mexicana, Mexico.
Electrical Engineer, London.
Electrical Review, London.
Electrical Review & Western Electrician.
Electrician, London.
Elektrochemie, Germany.

Electrotechnik & Maschinenbau, Austria.
Elektroschemische Zeitschrift, Germany.
Engineering Association of New South Wales, Australia.
Engineering, London.
Engineering Magazine.
Engineering Review, London.
Engineering & Contracting.
Engineering & Mining Journal.
Engineers' Club.
Enginers' Society of Eastern Pennsylvania.
Engineers' Society of Western Pennsylvania.
English Ceramic Society, England.
Excavating Engineer.

F

Faraday Society, London.
Federated Malay States Mines Report.
Fer et Acier, France.
Ferrum, Aachen, Germany.
Florida State Geological Survey.
Fördertechnik, Germany.
Foundry.
Franklin Institute.
Fuel Oil Journal.

G

General Electric Review.
Geological Society of America.
Geological Society of Tokyo, Japan.
Geological Society of Washington, D. C.
Georgia Geological Survey.
Gesamte Schiss & Sprengstoffwesen, Germany.
Giesserei Zeitung, Germany.
Glückauf, Germany.
Great Britain Geological Survey.

I

Idaho State Inspector of Mines.
Ideal Power.
Illinois Bureau of Labor Statistics.
Illinois State Geological Survey.
Illinois State Mining Board.
Illinois Miners' Mechanics Institute.
Illinois University.
Imperial Institute.
India Geological Survey.
India Mining & Geological Institute.
Indian & Eastern Engineer.
Indiana Department of Geology & Natural Resources.
Indust. Chimica, Minerar. e Metallurg., Italy.
Industrial Advocate, Nova Scotia.
Industrial Engineering & Engineering Digest.
Ingot.
Ingeneria y Contratista.
Ingeneria, Spain.
Institute of Engineers & Ship Builders, Scotland.
Institute of Marine Engineers, England.
Institution of Mining Engineers, London.
Institution of Mining & Metallurgy, London.
International Congress for Radiology & Electrology.
International Railway Fuel Association.
International Institute of Technical Bibliography.
Internationalen Vereines der Bohringenieure & Bohrtechniker, Austria.
Iowa Engineer.
Iowa Geological Survey.
Iowa Mine Inspectors.
Iowa State College Engineering Experiment Station.
Iowa University.
Iron Age.
Iron Trade Review.
Iron & Coal Trades Review, London.
Iron & Steel Institute, London.

J

Jern Kontorets Annaler, Sweden.
Journal du Four Electrique et de l'Electrolyse, France.
Journal du Petrole, France.
Journal of Electricity, Power & Gas.
Journal of Geology.
Journal of Industrial & Engineering Chemistry.

K

Kali, Erz & Kohle, Germany.
Kali, Halle, Germany.
Kansas Mine Inspector.
Kansas University Geological Survey.
Kentucky Department of Mines.
Kentucky Geological Survey.
Kentucky Mining Institute.
Kentucky University.
Kohle & Erz, Germany.
Kohleninteressent, Germany.
Kunstdünger Industrie, Germany.

L

La Metallurgie du Nord, France.
Lackawanna Chemical Society.
Lake Superior Mining Institute.
Le Pétrole, France.
Le Phosphate, France.
Levant Trade Review, Turkey.
Liverpool Geological Association, England.
L'Opinion Financiere, France.
Los Angeles Chamber of Mines & Oil.
Louisiana Geological Survey.

M

Madrid Cientifico, Spain.
Malayan Tin & Rubber Journal, F. M. S.
Manchester Association of Engineers, England.
Manchester Mining & Geological Society, England.
Marine Review.
Maryland Geological Survey.
Maryland Mine Inspector.
Mechanical World, England.
Mensuel de L'Association Amicale.
Metal und Erz, Halle, Germany.
Metaux et Alliages, France.
Metallurgia Italiara, Italy.
Metallurgical & Chemical Engineering.
Metallurgie & Construction Mechanique, France.
Metallurgie, Germany.
Mexicana Sociedad Geologica.
Mexican Institute of Mining & Metallurgy, Mexico.
Mexican Mining Journal.
Michigan Geological Survey.
Midland Institute of Mining, Civil & Mechanical Engineers, England.
Mine Inspectors' Institute of U. S.
Mine, Quarry & Derrick.
Mining American.
Mining Engineering, London.
Mining Engineering & Electrical Record, B. C.
Mining Institute of Scotland.
Mining Journal, London.
Mining Magazine, London.
Mining, Oil & Engineering Review.
Mining Society of Nova Scotia.
Mining World & Engineering Record, London.
Mining & Engineering Review, Australia.
Mining & Engineering World.
Mining & Geological Institute of India.
Mining & Metallurgical Society of America.
Mining & Oil Bulletin.

Mining & Scientific Press.
Minnesota Geological & Natural History Survey.
Minnesota School of Mines.
Minnesota University.
Mississippi Geological Survey.
Missouri Bureau of Geology and Mines.
Missouri Geological Survey.
Missouri School of Mines.
Mois Minier et Metallurgique, France.
Montan-Zeitung für Oesterreich-Ungarn und die Balkanländer, Austria.
Montana Bureau of Agriculture, Labor & Industry.
Montana Inspector of Mines.
Montanistische Rundschau, Germany.
Municipal Engineer.

N

National Academy of Sciences.
National Association of Chemical Industry.
National Association of Colliery Managers, London.
National Association of Stationary Engineers.
National Geographic Magazine.
National Lime Manufacturers' Association.
Natural Gas Journal.
Nevada Inspector of Mines.
Nevada University.
New Jersey Geological Survey.
New South Wales Engineering Association.
New York Geological Survey.
New Zealand Geological Survey.
New Zealand Institute.
North Carolina Geological Survey.
North of England Institute of Mining & Mechanical Engineers.
North Staffordshire Institute of Mining & Mechanical Engineers.
Nova Scotia Mining Society.

O

Oesterreichische Zeischrift für Berg- und Hüttenwesen, Vienna, Austria.
Ohio Geological Survey.
Oil Age.
Oil & Gas Journal.
Oil & Mining Bulletin.
Oildom.
Oklahoma Geological Survey.
Ontario Bureau of Mines.
Oregon Mineral Resources.
Oregon University.

P

Pahasapa Quarterly.
Pan American Union.
Penn State Mining Quarterly.
Pennsylvania Mines Department.
Pennsylvania Topographic & Geologic Survey.
Peru Engineer of Mines.
Peru Today, Lima.
Pétrole, France.
Petroleum, Germany.
Petroleum World, London.
Pfalz-Saarbrücker Bezirksvereins Deutscher Ingenieure, Germany.
Philadelphia Engineers' Club.
Philippine Journal of Science, Manila.
Pittsburgh University.
Popular Mechanics.
Popular Science Monthly.
Power.
Practical Electricity & Engineering.
Practical Engineer.
Praktische Geologie, Germany.

Q

Quebec Bureau of Mines.
Quebec Department of Colonization, Mines & Fisheries.
Queensland Geological Survey.
Queensland Government Mining Journal.

R

Radium.
Rassegna Mineraria Metallurgica e Chimica, Italy.
Reclamation Record.
Resoconti delle Riunioni Association, Italy.
Retail Coalman.
Revista Minera e Industria de Linares, Spain.
Revista Minera Metallurgica y de Ingenieria, Spain.
Revista Petrolera, Mexico.
Revue de Metallurgie, France.
Revue des Matériaux de Construction, France.
Revue d'Electrochimie et d'Electrometallurgie, France.
Revue Industrielle du Centre, France.
Revue Noire, France.
Revue Practique des Industries Metallurgiques, France.
Rhodesia (Southern) Mines Department.
Rhodesian Chamber of Mines, Bulawayo.
Rigasche Industrie, Russia.
Rock Products.
Royal Geological Society of Cornwall, England.
Royal Society of Arts Journal, London.
Royal Society of Canada.

S

Salt Lake Mining Review.
Schiess & Sprengtoffwesen, Germany.
Science & Art of Mining, England.
Science Conspectus.
Sibley Journal of Engineering.
Slate Trade Gazette, England.
Smithsonian Institution.
Société Amicale des Anciens Éléves de l'École des Maitres-Mineurs de Douai, France.
Société Chimique de Belgique, Belgium.
Société des Ingénieures Civils de France.
Society of Arts, London.
Society of the Chemical Industry, London.
South Africa Engineering, London.
South Africa Geological Survey.
South African Association of Engineers.
South African Institute of Electrical Engineers.
South African Mining Journal.
South Australia Department of Mines.
South Carolina Geological Survey.
South Dakota Engineering Society.
South Dakota Geological Survey.
South Dakota Inspector of Mines.
South Dakota School of Mines.
South Staffordshire & Warwickshire Institute of Mining Engineers, England.
South Wales Institute of Engineers, Wales.
Staffordshire Iron & Steel Institute, England.
Stahl und Eisen, Germany.
Steam.
Stone Trade Journal.
Südwestdeutsche Industrie Zeitung, Prussia.
Sydney University Engineering Society.

T

Technische Blätter, Essen-Ruhr, Germany.
Technische Centralanzeiger, Germany.

Tech. du Nord de la France.
Tennessee Department of Mines.
Tennessee Resources.
Tennessee State Geological Survey.
Teniente Topics, Chile.
Texas University.
Texas University Mineral Survey.
Tonindustrie Zeitung, Berlin, Germany.
Transvaal Chamber of Mines, Johannesburg.

U

United States Bureau of Mines.
United States Bureau of Standards.
United States Consular Reports.
United States Department of Commerce and Labor.
United States Geological Survey.
United States National Museum.
Utah Bureau of Immigration, Labor & Statistics.

V

Vancouver, B. C., Chamber of Mines.
Vereines Deutscher Ingenieure, Germany.
Vermont Geological Survey.
Victoria Chamber of Mines, Australia.
Virginia Geological Survey.

W

Washington (D. C.) Academy of Sciences.
Washington Geological Survey.
West Australia Chamber of Mines.
West Australia Geological Survey.
West Australia Institution of Engineers.
West Australian Mining, Building & Engineering Journal, Kalgoorlie.
West of Scotland Iron & Steel Institute.
West Virginia Department of Mines.
West Virginia Geological Survey.
West Virginia Mining Association.
Western Chemist & Metallurgist.
Western Engineering.
Western Society of Engineers.
Wisconsin Engineer.
Wisconsin Geological & Natural History Survey.
Wisconsin University.
Wood Preserving.
Wyoming Geological Survey.

Y

Yale Scientific Monthly.

Z

Zentral Verbandes der Bergbau Betriebsleiter, Bohemia.

EXPLANATIONS AND ABBREVIATIONS

The entries show:

(1) The author of the article.

(2) A dash if the name is not apparent.

(3) The title, in italics, of the article or book. Titles in foreign languages are ordinarily followed by a translation or explanation in English.

(4) When the original title is insufficient a brief amplification is added. This addition is in brackets.

(5) The journal in which the article appeared; also the date of issue, and the page on which the article begins.

(6) Approximate number of words. Illustrated articles are indicated by an asterisk (*).

(7) The price. Articles mentioned will be supplied to subscribers of Mining and Engineering World and others at the prices quoted. Two-cent postage stamps will be accepted on orders less than $1. Subscribers will be allowed a discount of 5 cts. if the price of the article exceeds 50 cts.

NOTE.—When there is more than one author to an article, only the first named appears in alphabetical arrangement, the others appearing, however, on the page or pages designated in author's index.

Subjoined is a list of the commoner abbreviations found in this work. They are used chiefly in the names of periodicals, and of associations. The abbreviations will be found easily intelligible at sight, and are what they purport to be—self-explanatory abbreviations, not symbols.

Abst.—Abstract.
Acad.—Academy; Académie; Accademia.
Adv.—Advance.
Afr.—Africa; African.
Akad.—Akademie.
Allgm.—Allgemeine.
Amer.—American.
A. I. M. E.—American Institute Mg. Eng.
Archts.—Architects.
Assn.—Association.
Ber.—Berichte.
Bol.—Boletin; Boletim; Bollettino.
Bull.—Bulletin.
Bur.—Bureau.
Centralbl.—Centralblatt.
C-R.—Compte-Rendu; Resoconti.
Chap.—Chapter.
Chem.—Chemical.
Chemy.—Chemistry.
Coll.—College.
Colly.—Colliery.
Cong.—Congress.
Conv.—Convention.
d.—des (French and German).
Dept.—Department.
Deu.—Deutsche, etc.
Econ.—Economic.
Ed.—Editorial.
Elect.—Electrical.
Engg.—Engineering.
Engr.—Engineer.
Engrs.—Engineers.
Ext.—Extract.
f.—for; für.
Gaz.—Gazette.
Geol.—Geology.
Geolog.—Geological.
Ges.—Gesellschaft.
Govt.—Government.
Hüttenm.—Hüttenmännische.
Ind.—Industrial; Industriel; Industrielle.
Ingr.—Ingenieure, Ingenieros.
Inst.—Institute; Institut; Instituto.
Instn.—Institution.
Intl.—International.
Jahresber.—Jahresbericht.
Jahrb.—Jahrbuch.
Jnl.—Journal.
Mag.—Magazine.
Mech.—Mechanical.
Met.—Metallurgy.
Metl.—Metallurgical.
Mex.—Mexican.
Mfrs.—Manufacturers.
Mg.—Mining.
Min.—Mineral.
Mittlngn.—Mitteilungen.
Oestr.—Oesterreichische; Oesterreich.
Proc.—Proceedings.
Quart.—Quarterly.
Rec.—Record.
Rept.—Report.
Res.—Resources.
Rev.—Review; Revue; Revista.
Sci.—Science; Sciences.
Scient.—Scientific.
Soc.—Society; Société; Società.
Suppl.—Supplement; Supplementary.
Surv.—Survey.
Tech.—Technology.
Trans.—Transactions.
Ver.—Verein.
Verb.—Verband.
Verh.—Verhandlungen.
Univ.—University.
Zentralbl.—Zentralblatt.
Ztg.—Zeitung.
Zts.—Zeitschrift.

PART I.

GEOLOGY AND MINERALOGY.

CHAPTER I.

MINING GEOLOGY, ORE GENESIS AND MINERALOGY.

GEOLOGY.

Andrews, E. C.—*Molybdenite: Its Occurrence and Treatment in New South Wales.* [Abst. from Bulletin No. 23 of the N. S. W. Department of Mines].—Mg. & Engg. Rev. Aug. 5 1916; p 286; pp 2½; 35c.

Andrews, E. C.—*Notes on the Structural Relations of Australasia, New Guinea and New Zealand.* [On the correlation of the formation of these several neighboring islands].—Jnl. of Geol. Dec. 1916; p 751; pp 26*; 75c.

Anrep, Aleph.—*Investigation of the Peat Bogs and Peat Industry of Canada,* 1913-1914. [Each bog-area is described separately and grouped by provinces in which they are located. Notes on foreign peat production are given].—Canada Dept. of Mines, Mines Branch Bull. 11; pp 185*.

Bacon, Raymond F.; Hamer, William A.—*The American Petroleum Industry.* [In Vol. I the history and geology, etc., regarding oil wells is taken up, while Vol. II is on refining of oil].—McGraw-Hill Co.; books; Vol. I; pp 446*; Vol. II; pp 517*; $5 each.

Ball, Lionel C.—*Mount Cannindah Copper Mine, Australia.* [The history by years, geology, concentrating and smelting methods are taken up in detail with production figures].—Queen. Gov't Mg. Jnl. July 15 1916; p 318; pp 6*; 35c.

Ball, L. C.—*Oil Shales in the Port Curtis District, Queensland, Australia.*—Queen. Geol. Surv. Report.

Ball, Sydney H.—*The Lead Mines of Washington County, Missouri.* [A brief description of the geology of the deposits and operations and methods of working the deposits].—M. & S. P. Dec. 2 1916; p 807; pp 3¼*; 20c.

Bancroft, J. Austen.—*Mining Operations in Quebec During* 1915. [A separate report on the geology of the zinc-lead deposits in Portneuf county is included].—Quebec Dept. of Mines; Report; pp 146*.

Barnett, V. H.—*Geology of the Hound Creek District of the Great Falls Coal Field, Cascade County, Montana..* [Geologic maps and description of the formation are given].—U. S. G. S. Bull. 641-H; pp 17*.

Barton, Donald C.—*The Geological Significance and Genetic Classification of Arkose Deposits.*—Jnl. of Geol. Aug. 1916; p 417; pp 33*; 75c.

Blackwelder, Eliot.—*The Geologic Role of Phosphorus.* [Treats on the action of phosphorus in solution with respect to the formation of minerals and other substances in a general way].—American Jnl. of Sci. Oct. 1916; p 285; pp 14*; 60c.

Bonillas, Y. S; Tenney, J. B.; Feuchère, L.—*Geology of the Warren Mining District, Arizona.* [A complete review of the geology, mineralogy and nature of ore deposits of the district].—Bull. A. I. M. E. Sept. 1916; p 1397; pp 69*; 35c.

Boulton, W. S.—*Geology and Petroleum Resources.* [Abstract from the presidential address to the Geological Section of the British Assn.].—Petro. World Oct. 1916; p 489; pp 2¼; 35c.

Boulton, W. S.—*Study of Concealed Coal Beds.* [The presidential address to the British Assn. for the Advancement of Sci.].—Coal Tr. Bull. Nov. 1 1916; p 43; pp 4½; 25c.

Bradley, Walter W.—*Mines and Mineral Resources of Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma, and Yolo Counties, California.* [Separate descriptions of mines, deposits and operations of mines and plants].—Calif. Mg. Bur.; pp 208*.

Branson, E. B.—*The Lower Embar Limestone of Wyoming and Its Fauna.*—Jnl. of Geol. Nov. 1916; p 639; pp 32*; 75c.

Brokaw, Albert D.—*Preliminary Oil Report on Southern Illinois.* [Describes areas tested and the geology of the formation with respect to oil deposits].—Ills. Geol. Surv. Bull. 35; pp 13*.

Brooks, Alfred H.—*Antimony Deposits*

of Alaska. [A general review and classification is first made and each district is taken separately, giving a complete review later].—U. S. G. S. Bull. 649; pp 64*.

Brooks, Alfred H.—*Preliminary Report of the Tolovana District, Alaska.* [A description of the country, its geology and placer deposits].—U. S. G. S. Bull. 642-C; pp 9*.

Brown, J. F. Kellock.—*Damascus Steel from Mount Lebanon Iron Ore.* [The Geology, transportation and nature of the ores in these remote and ancient mines of Palestine are briefly described].—E. & M. J. Dec. 23 1916; p 1085; pp 1¼*; 25c.

Burdick, A. J.—*Valuable Minerals, How to Find and Know Them.* [Physical and chemical tests of an elementary nature are given. Topographic features which indicate deposits are also spoken of].—Gateway Pub. Co., Beaumont, Cal.; book; pp 42*; 50c.

Burrows, A. G.; Hopkins, P. E.—*Boston Creek Gold Area and Goodfish Lake Gold Area.* [The geology, mines and prospects and economic minerals of each area ore considered separately].—Ont. Bur. of Mines Bull. No. 29; pp 24*.

Cady, Gilbert H.—*Coal Resources of District VI.* [Describes details of the formation of small areas separately].—Ills. Geol. Surv. Bull. 15; pp 94*.

Calkins, F. C.—*Molybdenite and Nickel Ore in San Diego County, California.* [Both ores are considered separately. The deposits to date are prospects, but worth future consideration].—U. S. G. S. Bull. 640-D; pp 10*.

Cantrill, T. C.; Dixon, E. E. L.; Thomas, H. H.; Jones, O. T.—*Geology of the South Wales Coal Field.* [Particularly the field around Milford].—Geol. Surv. of Eng. and Wales; Memoir; His Majesty's Stationery Office, London; $1.

Capps, Stephen R.—*The Turnagain-Knik Region, Alaska.* [On the geography, geology and mineral resources. Gold placers and gold-silver lodes are found in the district].—U. S. G. S. Bull. 642-E; pp 48*.

Chapin, Theodore; Canfield, George H. —*Mining Developments and Water-Power Investigation in Southeastern Alaska.* [The gold and copper mines are described by districts in which they are located and reviews are made of sources of water power].—U. S. G. S. Bull. 642-B; pp 56*.

Clapp, Charles H.—*Geology of the Nanaimo Map-Area.* [The area is on Vancouver island, British Columbia. Coal is the main product, though sand and gravel, clay and stone are also produced].—Canada Geol. Surv. Memoir 51; pp 135*.

Cleland, H. F.—*Geology, Physical and Historical.* [A complete text which might be termed general geology].—American Book Co. N. Y.; book; pp 718*.

Crider, A. F.—*The Coals of Letcher County, Kentucky.* [Geology is taken up in detail and the different coal beds are described separately].—Kentucky Geol. Surv. Vol. VI, Ser. VI; pp 234.

Daly, M. R.—*The Diastrophic Theory.* [A study and discussion of the theory as regards the mechanics of oil and natural gas accumulations.]—Bull. A. I. M. E. July 1916; p 1137; pp 21*; 35c.

Darton, N. H.—*Geology and Underground Water of Luna County, New Mexico.* [A very complete description of the geologic formation].—U. S. G. S. Bull. 618; pp 188*.

De Beque, G. R.—*The Bituminous-Shale Industry in Northwestern Colorado.* [Brief description of activities with respect to treating the shale for its oil and a more detailed description of the geology of the formation).—E. & M. J. Dec. 9 1916; p 1011; pp 1¾*; 25c.

De Kalb, Courtenay.—*Surficial Indications of Copper.* [Discussion on a paper of the same title by Frank H. Probert].—M. & S. P. July 22 1916; p 115; pp 1¼; 20c.

DeLury, J. S.—*The Manigotagan Gold District, Manitoba.* [The geology is reviewed and the Rice Lake, Gold Lake and Long Lake areas are included in the district].—Canadian Mg. Jnl. Aug. 1 1916; p 362; pp 3*; 35c.

DeLury, J. S.—*The Mineral Belt North of the Pas, Manitoba.* [Mostly on the geology and nature of the deposits and country formation].—Canadian Mg. Jnl. Sept. 1 1916; p 412; pp 4*; 35c.

de Schmid, Hugh S.—*Investigation of a Reported Discovery of Phosphate in Alberta.* [The Commission of Conservation, Canada, found phosphate rock near Banff, Alberta. The nature and geology of the deposits are here described in detail.]—Canada Mines Branch; pp 50*.

Dominian, Leon. — *Fuel in Turkey.* [Coal and petroleum are reviewed separately by the places in which they occur. The production, location and nature of the deposits are given].—Bull. A. I. M. E. June 1916; p 1011; pp 20*; 35c.

Draper, David.—*De Launay on Rand Gold.* [A discussion of De Launay's theory on the origin of gold in the conglomerates of the Rand district, South

Africa].—Mg. Mag. July 1916; p 26; pp 5; 50c.

Dunstan, B.—*Queensland Mineral Deposits, Australia.* [A detailed description of nature of occurrence, production, prospects and methods of concentration of asbestos ores].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 372; pp 3½*; Oct. 14 1916; p 475 pp 3½; 70c.

Duparc, Louis.—*El Plantino.* [A paper read before the Assn. of Eng. of France, dealing with the geology and occurrence of platinum in the Ural mountains of Russia].—Revista Minera Aug. 1 1916; p 367; pp 3¼; 35c.

Du Toit, Alex L.—*Report of the Oil-Shales in Impendhle County, Natal, South Africa.* [Part of a report of a Geol. Survey Memoir].—S. Afr. Mg. Jnl. Oct. 28 1916; p 193; pp 2; 35c.

Dynan, John L.—*The White Caps Mine, Manhattan, Nevada.* [For the greater part the geology of the ore formation is described].—M. & S. P. Dec. 16 1916; p 884; pp 2*; 20c.

Eakin, H. M.; Mertie, J. B.; Harrington, G. L.—*The Cosna-Nowitna and Ruby-Kuskokwim Regions, Alaska.* [The geology, geography and mineral resources of the country are first reviewed and followed by separate descriptions of the districts].—U. S. G. S. Bull. 642-H; pp 56*.

Emery, Wilson B.—*The Igneous Geology of Carrizo Mountain, Arizona.* [Published by permission of the U. S. G. S., giving the petrology and general nature of the rock as a formation].—American Jnl. of Sci. Oct. 1916; p 349; pp 15*; 60c.

English, Walter A.—*Geology and Oil Prospects of Cuyuna Valley, Caliornia.* [On the geolgical structure with respect to oil possibilities].—U. S. G. S. Bull. 621-M; pp 25*.

Fath, A. E.—*An Anticlinal Fold Near Billings, Noble County, Oklahoma.* [The geology and formation of the anticline is described relative to the possibilities of oil and gas which is found 20 miles from the anticline].—U. S. G. S. Bull. 641-E; pp 18*.

Fearnsides, W. G.—*The Coal Seams of South Yorkshire.* [A paper read before the Sheffield Soc. of Eng.].—Coll'y. Guard. Oct. 29 1916; p 749; pp 1⅓*; 35c.

Ferguson, David.—*Form and Structure of the Coal Fields of Scotland.* [A paper read before the Inst. of Mg. Eng., England].—Coll'y Guard, Sept. 22 1916; p 545; pp 1⅔; 35c.

Ferguson, David.—*The Coal Fields of Scotland.* [A paper read before the Inst. of Mg. Eng., Scotland. The geology and nature of the deposits are described].—Coal Tr. Bull. Nov. 15 1916; p 47; pp 3¾; 25c.

Ferguson, Henry G.—*The Golden Arrow, Clifford and Ellendale Districts, Nye County, Nevada.* [Description of the geology and what little work has been done in the field].—U. S. G. S. Bull. 640-F; pp 11*.

Fleck, Herman.—*A Treatise on Molybdenum.* [An account of its mineralogy and places of occurrence is followed by a description of general methods of concentrating and smelting the ores. Uses of the metal are given].—Colo. School of Mines Qt'ly July 1916; p 22; pp 11; 35c.

Foerste, A. F.—*Upper Ordovician Formations in Ontario and Quebec.* [Complete descriptions of the formation by separate small areas].—Canada Geol. Surv. Memoir 83; pp 279*.

Forbes-Leslie, William. —*The Norfolk Oil Shales.* [A paper read before the Inst. of Petroleum Technologists, England. In England and Scotland oil is found mostly in these shales and similar formation].—Petro. World Nov. 1916; p 525; pp 5; 35c.; Coll'y Guard. Nov. 3 1916; p 853; pp 1½; 35c.

Frood, G. E. B.—*The Cape Asbestos Industry, South Africa.* [From the annual report of the Government Mining Engineer. The deposits and working of the same in Cape province are described in detail].—S. Afr. Mg. Jnl. Sept. 30 1916; p 94; pp 1½; 70c.

Glenn, L. C.—*The General Features of the Tennessee Coal Field North of the Tennessee Central Railroad.* [A review of the geology of the formation, coals and mining operations in the area].—Res. of Tenn. July 1916; p 127; pp 28*.

Hares, C. J.—*Anticlines in Central Wyoming.* [This area of 5000 square miles was investigated with regard to the possibilities of oil, but is located between Casper and Lander, contiguous to which city oil is now being produced].—U. S. G. S. Bull. 641-I; pp 47*.

Hewett, D. F.—*Some Manganese Mines in Virginia and Maryland.* [On the geology, mineralogy and occurrence of the ores and methods of milling and mining at several mines].—U. S. G. S. Bull. 640-C; pp 35*.

Hinds, Henry.—*The Coal Resources of the Clintwood and Bucu Quadrangles, Virginia.* [A complete description of each bed in the area is given, with a general geologic description of the area as a whole].—Va. Geol. Surv. Bull. XII; pp 206*.

Hopkins, Oliver B.—*Structure of the*

Vicksburg-Jackson Area, Mississippi. [The formation and its structure are discussed, with special reference to oil and gas deposits].—U. S. G. S. Bull. 641-D; pp 28.

Hopkins, P. E.—*Iron Pyrite Deposits in Southeastern Ontario, Canada.* [An economic geological treatise on the subject].—Bull. A. I. M. E. Aug. 1916; p 1361; pp 9*; 35c.

Hubbard, J. D.—*The Quartz Veins of Butte County, California.*—E. & M. J. Aug. 19 1916; p 352; pp 2*; 25c.

Huels, Frederick William—*The Peat Resources of Wisconsin.* [Abstract of Bulletin 45 of the Wisconsin Geol. Surv. in which the nature of the beds and properties of the peat found in the several localities is given].—Jnl. Amer. Peat Soc. Oct. 1916; p 237; pp 12; $1.60.

Jessup, Douglas W.—*The Lakeview Mine, Utah.* [On the geology of the deposits, methods of operation and other general description].—E. & M. J. Sept. 30 1916; p 573; pp 3¾*; 25c.

Johnson, Bertrand L.—*Retreat of Barry Glacier, Port Wells, Prince William Sound, Alaska, Between* 1910 *and* 1914.—U. S. G. S. Prof. Paper 98-C; pp 5*.

Johnston, John; Williamson, E. D.—*The Rôle of Inorganic Agencies in the Deposition of Calcium Carbonate.*—Jnl. of Geol. Dec. 1916; p 729; pp 22; 75c.

Johnson, R. H.; Huntley, L. G.—*Principles of Oil and Gas Production.* [Treats on the nature and genesis of the deposits, methods of drilling and prospecting, methods of operating and last an economic geological review of oil and gas].—Wiley & Sons; book; pp 371*; $3.75.

Junghann, Dr.—*Die Kupfergrube Chuquicamata in Chile.* [The copper deposits in Chile].—Zts. Beg. Hütten & Salinenw. Band 62, 1914; p 411; pp 5*; $1.50.

Jones, Edward L., Jr.—*Reconnaissance of the Concully and Ruby Mining Districts, Washington.* [The first half is on the geological, geography and nature of the deposits. The last half is separate descriptions of mines and prospects].—U. S. G. S. Bull. 640-B; pp 26*.

Knopf, Adolph.—*Tin Ore in Northern Lander County, Nevada.* [The district is virgin and the mineralogy, geology and genesis of the ores are described].—U. S. G. S. Bull. 640-G; pp 14*.

Krebs, Charles E.; Teets, D. D., Jr.; White, I. C.— *County Reports of Raleigh and the Western Portions of Mercer and Summers Counties, West Virginia.* [An account of the geology, mineral deposits and operations].—W. Va. Geol. Surv. Report; pp 778*.

Lahee, Frederic H.—*Field Geology.* [On the recognition of structures from geologic phenomenon in the field with some general geology of use in this connection].—McGraw-Hill Book Co.; book; pp 508*; $3.

Lakes, Arthur.—*The Electric-Point Mine in Washington.* [A vivid description of the mine workings and geology of the ore and allied formation with some notes as to the genesis of the ores].—Mg. World Dec. 9 1916; p 991; pp 1¾*; 10c.

Lang, Herbert.—*Black Sand of the Pacific Coast.* [Tells of the mode of occurrence of these deposits which are not of large tonnages, and discusses the possibilities of more extensively working them].—M. & S. P. Dec. 2 1916; p 811; pp 2¾; 20c.

Larson, A. G.; Lakes, Arthur, Jr.—*Slocan Star Mine, British Columbia.* [Abstract of a report made by the authors on this mine, in which details regarding it are given].—Mg. & Eng. Rec. Oct. 1916; p 96; pp 4¼*; 35c.

Lee, Wallace.—*Geology of the Kentucky Part of the Shawneetown Quadrangle.* [The economic deposits are composed of coal, oil, lead, zinc and clay].—Kentucky Geol. Surv.; pp 73.

Loveman, M. H.—*The Geology of the Bawdwin Mines, Burma, Asia.* [Complete, detailed description of these lead-zinc sulphide deposits which have been worked since ancient times is given].—A. I. M. E. Bull. Dec. 1916; p 2119; pp 25*; 35c.

Lupton, Charles T.—*Geology and Coal Resources of Castle Valley in Carbon, Emery and Sevier Counties, Utah.*—U. S. G. S. Bull. 628; pp 88*; 30c.

Lupton, Charles T.; Condit, D. Dale—*Gypsum in the Southern Part of the Bighorn Mountains of Wyoming.* [Separate brief descriptions of each deposit are given and a general description of the nature of the country and its geology.—U. S. G. S. Bull. 640-H; pp 19*.

Mansfield, G. R.—*A Reconnaissance for Phosphate in the Salt River Range, Wyoming.*—U. S. G. S. Bull. 620-O; pp 19*.

Mansfield, G. R.; Roundy, P. V.—*Revision of the Beckwith and Bear River Formations of Southeastern Idaho.* [On the stratigraphy of these formations].—U. S. G. S. Prof. Paper 89; pp 10*.

McGrath, J. W.—*The Iron Mines of Wabana, Newfoundland.* [Describes the geology nature of the ores, disposal of the same and mining costs.].—Canadian Mg. Jnl. July 1 1916; p 315; pp 2¼; 35c.

McLaughlin, R. P.; Bradley, Walter C.; Brown, G. Chester; Lowell, F. L.—*Mines and Mineral Resources of Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin and Stanislaus Counties, California.* [Operations are included in separately describing mines, plants and unworked deposits].—Calif. Mg. Bur.; pp 220*.

Mellor, E. T.—*The East Rand South Africa.* [A description of the formation of the country].—S. Afr. Engg. June 1916; p 102; pp 2⅓*; 35c.

Merrill, Frederick J. H.—*Geology and Mineral Resources of San Diego and Imperial Counties.* [Though gold is the principal metal mined considerable is done in the non-metallic industry].—Calif. Mg. Bur.; pp 113*.

Miller, Benjamin L.; Singewald, Joseph T., Jr.—*The Patino Tin Mines, Bolivia.* [A description of the properties owned by Patino in Bolivia, including the mode of occurrence, methods of operation and geology of the formation].—E. & M. J. Sept. 9 1916; p 451; pp 4¼*; 25c.

Moffit, Fred H.—*Mineral Resources of the Upper Chitina Valley, Alaska.* [A district in which copper and gold have been found, but which has been prospected but little].—U. S. G. S. Bull. 642-C; pp 8*.

Moore, E. S.—*Observations on the Geology of the Broken Hill Lode, New South Wales.* [A complete geologic description of the formation, ore deposits and nature of the ore, citing instances at particular mines].—Eco. Geol. June 1916; p 327; pp 22*; 60c.

Nelson, W. A.—*The Tennessee Coal Field South of the Tennessee Central Railroad.* [Describes the geology, mining and nature of the coals in general for the entire area and separately for the different districts].—Res. of Tenn. July 1916; p 155; pp 29*.

Nevius, N. J.—*Notes on the Randsburg Tungsten District, California.* [The geology of the placer deposits and general conditions in operating in the district are reviewed].—Mg. World July 1 1916; p 7; pp 1¼; 10c.

Newland, David H.—*The New Zinc Mining District Near Edwards, N. Y.* [General remarks on zinc in Precambrian rocks].—Eco. Geol. Nov. 1916; p 623; pp 22*; 60c.

Ohren, D. W.; Garrett, R. E.—*Ponca City Oil and Gas Field, Oklahoma.* [The geology, production and other items related to the field are spoken of and it is contended that many of the wells thought dry are not].—Okla. Geol. Surv. Bull. 16; pp 30*.

Paige, Sidney.—*Silver City, New Mexico, Folio.* [Large separate maps of the quadrangle, with a geologic description of the formation and ore deposits].—U. S. G. S. Folio No. 199; pp 19*.

Palmer, Leroy A.—*A Sedimentary Magnesite Deposit.* [The deposit is operated by the Rex Plaster Co., Bissell, Cal. About 45 tons are produced per day and shipped to Los Angeles. Method of mining is briefly described].—E. & M. J. Dec. 2 1916; p 965; pp 2¼*; 25c.

Palmer, Leroy A.—*The Oatman District, Arizona.* [On the geology and nature of the deposits and genesis of the ores].—M. & S. P. Aug. 5 1916; p 193; pp 3½*; 20c.

Palmer, L. A.—*The Yellow Pine District, Nev.* [Describes the district, its geology and nature of the ore deposits found there. The systems of mining and milling are then reviewed and some details given].—E. & M. J. July 15 1916; p 123; pp 3*; 25c.

Parodi, Lorenzo.—*Notizie Sulla Metallurgia del Nickel Importanza del Nickel nell'odierna Metallurgia.* [Notes on the metallurgy of nickel today. Deals with the situation and methods employed in the principal producing countries].—Metallurgia Ital. May 31 1916; p 365; pp 14; No. 1.

Phalen, W. C.—*The Conservation of Phosphate Rock in Tennessee.* [On the geology, nature and genesis of the deposits and methods of stripping and mining the deposits, with notes on production].—Res. of Tenn. Oct. 1916; p 193; pp 24*.

Phalen, W. C.; Hicks, W. B.—*Potash Salts in* 1915. [Chemical qualitative tests and methods of analysis are also given. The economic geology and occurrence of this mineral are reviewed with an account of the progress made in developing the resources in this country].—Min. Res. of U. S. II:12; pp 39.

Probert, Frank H.—*Surficial Indications of Copper.* [Information on the physical and chemical properties of outcrops indicating copper deposits].—M. & S. P. July 15 1916; p 81; pp 7*; Aug. 19 1916; p 267; pp 9*; 40c.

Provot, F. A.—*Geology of the Jerome Mining District, Arizona.* [Abstract of "Geological Reconnaissance of Jerome District"].—E. & M. J. Dec. 9 1916; p 1028; pp 3¼*; 25c.

Purington, C. W.—*Precious Stones in the Urals, Russia.* [A description of the deposits and their location].—Mg. Mag. July 1916; p 24; pp 2*; 50c.

Reber, Louis E., Jr.—*The Mineraliza-*

tion at Clifton-Morenci District, Arizona. [Details on the geology of the formation, genesis and mineralogy of the deposits].—Eco. Geol. Sept. 1916; p 528; pp 36*; 60c.

Reger, David B.—*The Possibility of Deep Sand Oil and Gas in the Appalachian Geo-Syncline of West Virginia.*—Bull. A. I. M. E. Sept. 1916; p 1709; pp 16*; 35c.

Reid, J. H.—*Sundown Tin and Copper Mine, Ballandean, Queensland, Australia.* [On the geology of the deposit, working of the mine and concentrating of the ores].—Queen. Govt. Mg. Jnl. June 15 1916; p 260; pp 1¾*; 35c.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Robinson, Heath M.—*Ozokerite in Central Utah.* [Treats on the geology, genesis and tests for determining the mineral with descriptions of properties and methods used].—U. S. G. S. Bull. 641-A; pp 16*; Mg. World Sept. 16 1916; p 497; pp 1¾*; 10c.

Roesler, Max.—*Geology of the Iron-Ore Deposits of the Firmeza District, Oriente Province, Cuba.* [A very complete description of the geology, mineralogy and genesis of the ore bodies and formation related thereto].—Bull. A. I. M. E. Oct. 1916; p 1789; pp 51*; 35c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.; E. & M. J. Aug. 26 1916; p 371; pp 6*; 25c.

Runner, J. J.—*Geological Occurrence of Manganese.* [General description on the geology, mineralogy and occurrence of manganese in various parts of the world].—Pahasapa Dec. 1916; p 9; pp 10; 35c.

Saint-Smith, E. C. — *Kangaroo Hill Mineral Field, North Queensland, Australia.* [Notes on several of the mines in this area].—Queen. Govt. Mg. Jnl. Nov. 15 1916; p 534; pp 5½*; 35c.

Saint-Smith, Cecil E.—*Malvern Tin Mine, Gurrumbah, North Queensland.* [A description of the property, its operation and mode of occurrence of the ores].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 367; pp 2*; 35c.

Saint-Smith, Cecil E.—*Mount Mudlo Copper Mine, Kilkivan District, Australia.* [A detailed description of the underground workings and ore formations of the area].—Queen. Govt. Mg. Jnl. Oct. 14 1916; p 480; pp 3¾*; 35c.

Saint-Smith, Cecil E.—*Robson's Lodes of Wolfram, Tin, Etc., Tinaroo, North Queensland.* [An account of exploring operations and the geology and occurrence of the minerals].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 368; pp 1½*; 35c.

Schaller, Waldemar T.—*Mica in* 1915. [Gives prices, imports, exports, uses, production, nature and place of occurrence, foreign markets and general conditions of the industry in U. S.].—Min. Res. U. S. II:21; pp 14.

Schrader, Frank C.—*Geology and Ore Deposits of Mohave County, Arizona.* [Published by permission of the U. S. G. S. Geology of the district and of several of the mines with figures on their production is given].—Bull. A. I. M. E. Nov. 1916; p 1935; pp 33*; 35c.

Schrader, Frank C.—*The Ore Deposits of Mohave County, Ariz.* [Abstract of a paper read before the A. I. M. E. treating mostly on the gold deposits of the district].—M. & S. P. Nov. 19 1916; p 733; pp 5; 20c.

Schuchert, Charles.—*On Pre-Cambrian Nomenclature.* [A talk on the methods which should be employed in placing formations in various geologic ages].—American Jnl. of Sci. Dec. 1916; p 475; pp 12; 60c.

Scott, Herbert K.—*Manganese Ores of Bulkowina.* [A paper read before the Iron and Steel Inst., London. Geology of the deposits, methods of mining, mining costs and selling prices and grades of the ore are among items considered].—E. & M. J. Nov. 25 1916; p 935; pp 3; 25c.

Scott, Herbert K.—*Manganese Ores of the Bukowina, Austria.* [A concise but complete description of the country, the ores, geology, methods of handling and preparing and costs of the same].—Iron & Steel Inst. Adv. Copy 5; pp 20*; 50c.

Scott, Herbert K.—*Manganese Ores of the Bukowina, Europe.* [A paper read before the Iron and Steel Inst].—I. & C. Tr. Rev. Sept. 22 1916; p 342; pp 2¼*; 35c.

Scott, W. A.—*Nevada Douglas Mines and Mill.* [Describes the geology, mine and workings and equipment, with more details on the crushing and leaching plants].—Mg. World Aug. 12 1916; p 277; pp 2*; 10c.

Shaw, Eugene W.; Matson, George C.; Wegemann, Carrol H.—*Natural Gas Resources of Parts of North Texas.* [Describes the geology and the various oper-

ating fields, with some of the various methods they employ].—U. S. G. S. Bull. 629; pp 129*.

Sherwin, P. M.—*The Bituminous Coal Mines of Crow's Nest Pass, British Columbia.* [A general description of the various mines, their geological formation and operation].—Coal Age Dec. 23 1916; p 1034; pp 3½*; 20c.

Simmons, Theodore; Hanst, J. F.—*Dip and Strike Calculations.* [Graphical methods for determining it].—E. & M. J. Aug. 5 1916; p 270; pp 1*; 25c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Manganese Ores of the Lafayette District, Minas Geraes, Brazil.* [Separate descriptions on different districts and mines, also the nature of the ore and geology].—Bull. A. I. M. E. Oct. 1916; p 1745; pp 18*; 35c.

Singewald, Joseph E.; Miller, Benjamin L.—*Prominent Mines of Junin, Peru.* [Three mines in the same district are described as regards their ore deposits. One is vanadium, one bismuth and the last silver].—E. & M. J. Sept. 30 1916; p 583; pp 4¼*; 25c.

Singewald, Joseph T., Jr.; Miller, Benjamin LeRoy.—*The Morococha and Casapalca Districts, Peru.* [A general review of the mines and their activities. Copper, silver and zinc are produced].—E. & M. J. Nov. 18 1916; p 889; pp 4½*; 25c.

Singewald, Joseph T., Jr.; Miller, Benjamin.—*High-Grade Manganese Ores of Brazil.* [Excerpts from an article in Iron Age. A general description of the several deposits, mining and transportation costs and production are given].—Pan American Union Bull. Nov. 1916; p 601; pp 5½*; 35c.

Smeeth, W. F.—*Geological History of Mysore, India.* [A geological description of the formation].—Mysore Dept. of Mines and Geol.; pp 29*; 75c.

Smeeth, W. F.; Iyengar, P. S.—*Mineral Resources of Mysore, India.* [A brief account of the more important economic minerals, their occurrence and distribution, with notes on their mining and metallurgical treatment and uses].—Mysore Dept. of Mines & Geol. Bull. 7; pp 193; $1.50.

Spencer, Arthur C.—*The Atlantic Gold District and North Laramie Mountains, Fremont, Converse and Albany Counties, Wyoming.*—U. S. G. S. Bull. 626; pp 85*.

Stansfield, J.—*The Pleistocene and Recent Deposits of the Island of Montreal.* [The stratigraphy of the area is described in detail. Clay for red brick is the principal economic product produced].—Canada Geol. Surv. Memoir 73; pp 80*.

Staples, Ernest H.—*Some Effects of the Master Folds on the Structure of the Bristol and Somerset Coalfields, England.* [A paper read before the Manchester Geol. & Mg. Soc.].—I. & C. Tr. Rev. Oct. 13 1916; p 1; 35c. Coll'y Guard. Oct. 13; p 699; pp 1⅔; 35c.

Stebinger, Eugene.—*Possibilities of Oil and Gas in North-Central Montana.* [Reviews the geologic structure and formation similar to that of other nearby fields].—U. S. G. S. Bull. 641-C; pp 43*.

Stephenson, Lloyd W.; Crider, Albert F.; Dole, Richard B.—*Geology and Ground Waters of Northeastern Arkansas.*—U. S. G. S. Water Supply Paper 399; pp 315*.

Storms, William H.—*Outcrops and the Prospector.* [Tells of the geologic nature and appearance of an outcrop and what the same would signify. In most instances particular cases are cited].—M. & S. P. July 22 1916; p 129; pp 4*; 20c.

Toso, Pietro.—*Sul Modo di Formazione dei Giacimenti Petroliferi e Solfiferi.* [On the method of formation of petroliferous and sulphurous materials]. —Ind. Chim. Min. & Met. June 10 1916; p 177; pp. 5; June 25; p 193; pp 3¾*; 70c.

Tucker, W. B.—*Mines and Mineral Resources of Amador, Calaveras, Tuolumne.* [Economic mineral products are reviewed by separate descriptions of deposits and mines, with some information on the condition of the country].—Calif. Mg. Bur.; pp 180*.

Uglow, W. L.—*Lead and Zinc Deposits in Ontario and Eastern Canada.* Separate descriptions of deposits are given and these are classified according to the geologic nature of the deposit].—Annual Report Ont. Bur. of Mines Vol. XXV, Part II; pp 56*.

Vivian, Arthur C.—*Barytes Mining in Georgia.* [Describes the geology of the deposits, methods of prospecting, washing and concentration and the leaching method of refining].—E. & M. J. Dec. 23 1916; p 1083; pp 2¼*; 25c.

Wade, Arthur.—*Petroleum Prospects on Brundy Island, Tasmania.* [Deals with the geology and possibilities there]. —Tasmania Parliament Report No. 60; pp 6*; 50c.

Wallace, R. C.; DeLury, J. S.—*The Mineral Belt North of the Pas, Northwestern Manitoba and Eastern Saskatchewan.* [Abstract of a report of the Manitoba Public Utilities Commission]. —Canadian Mg. Inst. Bull. Oct. 1916; p 884; pp 6½; 35c.

Watkins, Joel H.—*Manganese in Ten-*

nessee. [Describes the occurrence of the ores and geology of the formation].—E. & M. J. Sept. 23 1916; p 545; pp 1½*; 25c.

Watkins, Joel H.—*Railway Geological Department.* [An essay on the relation of the economic geologists to the railway and what the railway companies are doing in this respect].—E. & M. J. Nov. 25 1916; p 931; pp 2½; 25c.

Watts, A. C.—*Coal Mining Methods in Utah.* [Treats on the nature of the coals and peculiar geological features of the formation which control the methods of mining].—Coal Age Aug. 5 1916; p 214; pp 5¾*; 20c.

Way, Herbert, W. L.—*The Minerals of Sze-Chuan, China.* [Brief description of the deposits, their possibilities and operation. Salts have been mined, petroleum is plentiful and gold, silver and copper give promise].—Mg. Mag. July 1916; p 20; pp 4*; 50c.

Weidman, Samuel; Schultz, Alred R.—*The Underground and Surface Water Supplies of Wisconsin.* [Geology of the state as affecting underground waters described and separate reviews of each county are made].—Wis. Geol. Surv. Bull. No. 35; pp 664*.

Winchester, Dean E.—*Oil Shale in Northwestern Colorado and Adjacent Areas.* [Detailed geologic descriptions of the various formations and tabulated data regarding the nature of the same, as ascertained from drilling, etc., is included].—U. S. G. S. Bull. 641-F; pp 60*.

Wittich, L. L.—*Exploitation of Arkansas Zinc.* [Speaks of the nature of the deposits, the treating of sludge, ore and recent mill construction].—E. & M. J. Aug. 12 1916; p 295; pp 2½*; 25c.

Wolff, J. F.—*Recent Geologic Developments on the Mesabi Iron Range, Minnesota.* [A complete geological review of recent findings which tend to correlate the formation and ore bodies].—Bull. A. I. M. E. Oct. 1916; p 1763; pp 25*; 35c.

Yeatman, Pope.—*Mine of Chile Exploration Co., Chuquicamata, Chile.* [A paper read before the Pan-American Sci. Cong. The history, geology, reserves, power plant and testing of hydrometallurgical treatment of the ores are included].—Teniente Topics Aug. 1916; p 1; pp 18*; 35c.

——— *Geology of the Warren Mining District, Arizona.* [Discussion of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2164; pp 4; 35c.

——— *Iron Ore Deposits of Cuba and Method of Mining.* [Both hard and soft ores are found].—Mg. World July 1 1916; p 13; pp 1¼*; 10c.

——— *Relation of the Wissahickon Mica Gneiss to the Shenandoah Limestone and Octoraro Schist of the Doe Run and Avondale Region, Chester County, Pennsylvania.*—U. S. G. S. Prof. Paper; pp 26*.

——— *Southern Rhodesia Geological Survey's Report for* 1915. [Reprint of the report].—S. Afr. Mg. Jnl. July 8 1916; p 340; pp 1; 35c.

——— *The Occurrence and Uses of Nickel Ores.* [Canada, New Caledonia and Norway are the principal countries reviewed as regards production, occurrence, etc.].—Bull. Imp. Inst., E. C., 1916; No. 14; p 228; pp 26.

ORE GENESIS

Alderson, Matt. W.—*Mining Possibilties in Colombia, S. A.* [The author's experience in placer and vein operations for gold in that country].—Mg. World Aug. 26 1916; p 367; pp 2¼*; 10c.

Barton, Donald C.—*The Geological Significance and Genetics Classification of Arkose Deposits.*—Jnl. of Geol. Aug. 1916; p 417; pp 33*; 75c.

Blackwelder, Eliot.—*The Geologic Role of Phosphorus.* [Treats on the action of phosphorus in solution with respect to the formation of minerals and other substances in a general way].—American Jnl. of Sci. Oct. 1916; p 285; pp 14*; 60c.

Bonillas, Y. S.; Tenney, J. B.; Feuchère, L.—*Geology of the Warren Mining District, Arizona.* [A complete review of the geology, mineralogy and nature of the ore deposits of the district].—Bull. A. I. M. E. Sept. 1916; p 1397; pp 69*; 35c.

Broderick, T. M.—*Some Experiments Bearing on the Secondary Enrichment of Mercury Deposits.* [Deals mostly with the geochemistry of this process of genesis].—Eco. Geol. Nov. 1916; p 645; pp 7; 60c.

Calkins, F. C.—*Molybdenite and Nickel Ore in San Diego County, California.* [Both ores are considered separately. The deposits to date are prospects, but worth future consideration].—U. S. G. S. Bull. 640-D; pp 10*.

Draper, David.—*De Launay on Rand Gold.* [A discussion of De Launay's theory on the origin of gold in the conglomerates of the Rand district, South Africa].—Mg. Mag. July 1916; p 26; pp 5; 50c.

Foye, W. G.—*The Relation of Titaniferous Magnetite Ores of Glamorgan Township, Haliburton County, Ontario, to the Associated Scapolitic Gabbros.* [Details of mineralogy, lithology and

genesis of the deposits is given].—Eco. Geol. Nov. 1916; p 662; pp 18*; 35c.

Jeffrey, E. C.—*Methods of Studying Coal.* [A new method revealing plant records in the genesis of coal].—Sci. Conspectus Vol. VI: III; p 71; pp 6*; 25c.

Johnson, R. H.; Huntley, L. G.—*Principles of Oil and Gas Production.* [Treats on the nature and genesis of the deposits, methods of drilling and prospecting, methods of operating and last an economic geological review of oil and gas].—Wiley & Sons; book; pp 371*; $3.75.

Knight, Cyril W.—*Geological Relations of Sudbury Nickel Ores.* [Reviews the nature of the deposits and geology of the related formation. The whole is in the form of discussion].—E. & M. J. Sept. 23 1916; pp 1¾*; 25c.

Knopf, Adolph.—*Tin Ore in Northern Lander County, Nevada.* [The district is virgin and the mineralogy, geology and genesis of the ores are described].—U. S. G. S. Bull. 640-G; pp 14*.

Lakes, Arthur.—*The Electric-Point Mine in Washington.* [A vivid description of the mine workings and geology of the ore and allied formation, with some notes as to the genesis of the ores].—Mg. World Dec. 9 1916; p 991; pp 1¾*; 10c.

Loftus, N.—*New Theory for Coal Formation.* [Says that coal was formed from the decomposition of carbon dioxide, which gas was near the earth's surface before mountains were made].—Coal Tr. Bull. Sept. 15 1916; p 41; pp 1½; 25c.

Loveman, M. H.—*The Geology of the Bawdwin Mines, Burma, Asia.* [Complete, detailed description of these lead-zinc sulphide deposits which have been worked since ancient times is given].—A. I. M. E. Bull. Dec. 1916; p 2119; pp 25*; 35c.

Oinouye, Y.—*A Peculiar Process of Sulphur Deposition, Japan.* [Describes sublimation, impregnation and flow deposits and depositions in lakes].—Jnl. of Geol. Dec. 1916; p 806; pp 3*; 75c.

Palmer, Leroy A.—*The Oatman District, Arizona.* [On the geology and nature of the deposits and genesis of the ores].—M. & S. P. Aug. 5 1916; p 193; pp 3½*; 20c.

Phalen, W. C.—*The Conservation of Phosphate Rock in Tennessee.* [On the geology, nature and genesis of the deposits and methods of stripping and mining the deposits, with notes on production].—Res. of Tenn. Oct. 1916; p 193; pp 24*.

Robinson, Heath M.—*Ozokerite in Central Utah.* [Treats on the geology, genesis and tests for determining the mineral with descriptions of properties and methods used].—U. S. G. S. Bull. 641-A; pp 16*.

Robinson, Heath M.—*The Ozokerite Field in Central Utah.* [Abst. from a U. S. G. S. bulletin. Genesis, properties, production, concentration, etc., are considered].—Mg. World Sept. 16 1916; p 497; pp 1¾*; 10c.

Roesler, Max.—*Geology of the Iron-Ore Deposits of the Firmeza District, Oriente Province, Cuba.* [A very complete description of the geology, mineralogy and genesis of the ore bodies and formation related thereto].—Bull. A. I. M. E. Oct. 1916; p 1789; pp 51*; 35c.

Rogers, Austin, F.—*Origin of Copper Ores of the "Red Beds" Type.* [The ores considered are mostly from New Mexico and conclusions have been drawn from a petrographic study of the rocks].—Eco. Geol. June 1916; p 366; pp 15*; 60c.

Sellards, E. H.—*Origin of Hard Rock Phosphates of Florida.* [The rock is found as large boulders in a formation of the Pliocene age].—Florida Geol. Surv. Fifth Annual Report; p 23; pp 58*.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Manganese Ores of the Lafayette District, Minas Geraes, Brazil.* [Separate descriptions on different districts and mines, also the nature of the ore and geology].—Bull. A. I. M. E. Oct. 1916; p 1745; pp 18*; 35c.

Smith, C. H., Jr.—*Genesis of Pyrite Ores of St. Lawrence County, New York.* [The bodies here are widely disseminated, but occur only with rusty gneisses].—New York State Museum Bull. No. 158; pp 40*.

Spurr, J. H.—*The Relation of Ore-Deposition to Faulting.* [Sights various observations of this form of genesis of ore as noted in the field].—Eco. Geol. Nov. 1916; p 601; pp 22; 60c.

Taber, Stephen.—*The Genesis of Asbestos and Asbestiform Minerals.* [Includes an account of asbestos and minerals related to it].—Bull. A. I. M. E. Nov. 1916; p 1973; pp 26*; 35c.

Van Tuyl, Francis M.—*New Points on the Origin of Dolomite.* [A historic review and field and experimental evidence on the new theory].—American Jnl. of Sci. Sept. 1916; p 249; pp 12; 60c.

Young, S. W.; Moore, Neil Preston.—*Laboratory Studies on Secondary Sulphide Ore Enrichment.* [Confined to copper sulphides and the generation of hydrogen sulphide].—Eco. Geol. June 1916; p 349; pp 17; 60c.

Zies, E. G.; Allen, E. T.; Merwin, H. E.—*Some Reactions Involved in Secondary Copper Sulphide Enrichment.* [Full details regarding laboratory and field investigations].—Economic Geol. Aug. 1916; p 497; pp 97*; 60c.

——— *Formation of Nitrate Deposits, Chile.*—M. & S. P. Aug. 25 1916; p 314; pp 1*; 20c.

——— *Origin of the Sudbury Nickel-Copper Ores*].—Canadian Mg. Jnl. Aug. 15 1916; p 390; pp 1*; 35c.

——— *The Diastrophic Theory.* [Discussion of a paper by Marcel R. Daly with respect to the genesis of oil and gas deposits from an organic origin].—A. I. M. E. Bull. Dec. 1916; p 2204; pp 7; 35c.

——— *The Mount Morgan Mine and Works, Australia.* [Complete description of the geology, mining and concentrating plant of this mine once a gold mine but now copper].—Mg. & Engg. Rev. July 5 1916; p 244; pp 9*; 35c.

MINERALOGY AND PETROGRAPHY

Barton, Donald C.—*The Geological Significance and Genetic Classification of Arkose Deposits.*—Jnl. of Geol. Aug. 1916; p 417; pp 33*; 75c.

Blackwelder, Eliot.—*The Geologic Role of Phosphorus.* [Treats on the action of phosphorus in solution with respect to the formation of minerals and other substances in a general way].—American Jnl. of Sci. Oct. 1916; p 285; pp 14*; 60c.

Blake, John M.—*Plotting Crystal Zones on Paper.* [Describes a graphic method and its practical application].—American Jnl. of Sci. Dec. 1916; p 486; pp 7*; 60c.

Bonillas, Y. S.; Tenney, J. B.; Feuchère, L.—*Geology of the Warren Mining District, Arizona.* [A complete review of the geology, mineralogy and nature of the ore deposits of the district].—Bull. A. I. M. E. Sept. 1916; p 1397; pp 69*; 35c.

Bowles, Oliver.—*The Technology of Marble Quarrying.* [Takes up methods of operation and accounting with a study of the mineralogical constituents of the rock which tend to vary its properties and grade].—U. S. Bur. of Mines Bull. 106; pp 174*; 40c.

Broderick, T. M.—*Some Experiments Bearing on the Secondary Enrichment of Mercury Deposits.* [Deals mostly with the geochemistry of this process of genesis].—Eco. Geol. Nov. 1916; p 645; pp 7; 60c.

Brooks, Alfred H.—*Antimony Deposits of Alaska.* [A general review and classification is first made and each district is taken separately, giving a complete review later].—U. S. G. S. Bull. 649; pp 64*.

Burdick, A. J.—*Valuable Minerals, How to Find and Know Them.* [Physical and chemical tests of an elementary nature are given. Topographic features which indicate deposits are also spoken of].—Gateway Pub. Co., Beaumont, Cal.; book; pp 42*; 50c.

Coleman, A. P.—*Chief Minerals of the Sudbury Nickel Ores.* [The location and nature of the particular minerals found in the field].—Canadian Mg. Jnl. Aug. 15 1916; p 388; pp 1¾*; 35c.

Connor, E. F.—*Crystal-Modeling.* [A system for crystal building by which not only existing forms, but also new ones may be derived].—Sci. Conspectus Vol. VI: III; p 71; pp 8*; 25c.

DeLury, J. S.—*The Mineral Belt North of the Pas, Manitoba.* [Mostly on the geology and nature of the deposits and country formation].—Canadian Mg. Jnl. Sept. 1 1916; p 412; pp 4*; 35c.

Dunstan, B.—*Queensland Mineral Index.*—Queen. Geol. Surv. Report.

Emery, Wilson B.—*The Igneous Geology of Carrizo Mountain, Arizona.* [Published by permission of the U. S. G. S., giving the petrology and general nature of the rock as a formation].—American Jnl. of Sci. Oct. 1916; p 349; pp 15*; 60c.

Fleck, Herman.—*A Treatise on Molybdenum.* [An account of its mineralogy and places of occurrence is followed by a description of general methods of concentrating and smelting the ores. Uses of the metal are given].—Colo. School of Mines Qt'ly July 1916; p 22; pp 11; 35c.

Ford, W. E.; Bradley, W. M.—*Margarosanite, a New Lead-Calcium Silicate from Franklin, N. J.*—American Jnl. of Sci. Aug. 1916; p 159; pp 3½*; 60c.

Foye, W. G.—*The Relation of Titaniferous Magnetite Ores of Glamorgan Township, Haliburton County, Ontario, to the Associated Scapolitic Gabbros.* [Details of mineralogy, lithology and genesis of the deposits is given].—Eco. Geol. Nov. 1916; p 662; pp 18*; 35c.

Gaby, W. E.—*Petrography of the Mount Morgan Mine, Queensland, Australia.*—Bull. A. I. M. E. Sept. 1916; p 1725; pp 20*; 35c.

Gillette, Halbert Powers.—*Handbook of Rock Excavation Methods and Costs.* [Details regarding the different methods used in rock excavation as drilling, explosives, etc.].—Clark Book Co.; book; pp 835*; $5.

Gottschalk, A. L. M.—*The Discovery of Kimberlite in Brazil.* [This is an eruptive rock which forms the matrix of a diamond bearing formation].—Mg. World Dec. 16 1916; p 1031; pp 1; 10c.

Hewett, D. F.—*Some Manganese Mines in Virginia and Maryland.* [On the geology, mineralogy and occurrence of the ores and methods of milling and mining at several mines].—U. S. G. S. Bull. 640-C; pp 35*.

Ichikawa, Shimmatsu.—*Some Notes on Japanese Minerals.* [Treats on the peculiar nature of some mineral crystals found in Japan].—American Jnl. of Sci. Aug. 1916; p 111; pp 9*; 60c.

Johnson, Bertrand L.—*Mining on Prince William Sound, Alaska.* [Gold, silver and copper mines and plants are reviewed separately by districts. Geology and mineralogy are reviewed in a general way].—U. S. G. S. Bull. 642-D; pp 9.

Knopf, Adolph.—*Tin Ore in Northern Lander County, Nevada.* [The district is virgin and the mineralogy, geology and genesis of the ores are described].—U. S. G. S. Bull. 640-G; pp 14*.

Larsen, S. Esper; Steiger, George.—*Sulphatic Cancrinite from Colorado.* [This paper is published by permission of the U. S. G. S. The mineral is principally a sodium aluminum silicate].—American Jnl. of Sci. Oct. 1916; p 332; pp 2½; 60c.

Larson, A. G.; Lakes, Arthur, Jr.—*Slovan Star Mine, British Columbia.* [Abstract of a report made by the authors on this mine, in which details regarding it are given].—Mg. & Eng. Rec. Oct. 1916; p 96; pp 4¼*; 35c.

Loveman, M. H.—*The Geology of the Bawdwin Mines, Burma, Asia.* [Complete, detailed description of these lead-zinc sulphide deposits which have been worked since ancient times is given].—A. I. M. E. Bull. Dec. 1916; p 2119; pp 25*; 35c.

Mabery, C. F.—*The Relations of Chemical Composition of Petroleum to Its Genesis and Geologic Occurrence.* [A detailed discussion of the subject from a practical and theoretical view point].—Eco. Geol. Sept. 1916; p 511; pp 17; 60c.

McDonnell, C. C.—*The Preparation and Properties of Lead Chloro Arsenate or Artificial Mimetite.*—American Jnl. of Sci. Aug. 1916; p 139; pp 7*; 60c.

Murdoch, Joseph. —*Microscopical Determination of Opaque Minerals.* [Reflected light is used entirely. A classification of the minerals is made and the peculiarities as seen under the microscope described].—John Wiley & Son; book; pp 165*; $2.

Phillips, A. H.—*New Zinc Phosphates from Salmo, British Columbia.* [Mineralogic treatise on the minerals].—American Jnl. of Sci. Sept. 1916; p 275; pp 4*; 60c.

Phillips, Alexander H.—*Some New Forms of Natrolite.* [Speaks of some new crystal shapes found in Ice Valley district, British Columbia].—American Jnl. of Sci. Dec. 1916; p 473; pp 2½*; 60c.

Pogue, Joseph E.—*The Chemistry of Minerals.* [Discusses the impurities of minerals and their effect on the mineral].—E. & M. J. Aug. 5 1916; p 4¾; 25c.

Probert, Frank H.—*Surficial Indications of Copper.* [On the geological and mineralogical peculiarities of ore outcrops].—M. & S. P. Aug. 19 1916; p 267; pp 9*; 20c.

Reber, Louis E., Jr.—*The Mineralization at Clifton-Morenci District, Arizona.* [Details on the geology of the formation, genesis and mineralogy of the deposits].—Eco. Geol. Sept. 1916; p 528; pp 36*; 60c.

Roesler, Max.—*Geology of the Iron-Ore Deposits of the Firmeza District, Oirente Province, Cuba.* [A very complete description of the geology, mineralogy and genesis of the ore bodies and formation related thereto].—Bull. A. I. M. E. Oct. 1916; p 1789; pp 51*; 35c.

Rogers, Austin F. — *The So-Called Graphic Intergrowth of Bornite and Chalcocite.* [Studies made with the microscope].—Eco. Geol. Sept. 1916; p 582; pp 12*; 60c.

Runner, J. J.—*Geological Occurrence of Manganese.* [General description on the geology, mineralogy and occurrence of manganese in various parts of the world].—Pahasapa Dec. 1916; p 9; pp 10; 35c.

Schaller, Waldemar T.—*Mineralogic Notes, Series* 3.—U. S. G. S. Bull. 610; pp 164*.

Schroeder, J.—*The Solubility of Leucite in Sulphurous Acid.* [Details of the chemistry and methods applied thereto].—Jnl. Ind. & Engg. Chem. Sept. 1916; p 779; pp 1; 60c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Manganese Ores of the Lafayette District, Minas Geraes, Brazil.* [Separate descriptions on different districts and mines, also the nature of the ore and geology].—Bull. A. I. M. E. Oct. 1916; p 1745; pp 18*; 35c.

Spencer, Arthur C.—*The Atlantic Gold District and North Laramie Mountains, Fremont, Converse and Albany Counties, Wyoming.*—U. S. G. S. Bull. 626; pp 85*.

Taber, Stephen.—*The Genesis of Asbestos and Asbestiform Minerals.* [Includes an account of asbestos and minerals related to it].—Bull. A. I. M. E. Nov. 1916; p 1973; pp 26*; 35c.

Van Tuyl, Francis M.—*New Points on the Origin of Dolomite.* [A historic review and field and experimental evidence on the new theory].—American Jnl. of Sci. Sept. 1916; p 249; pp 12; 60c.

Watson, T. L.—*Zircon-Bearing Pegmatites in Virginia.* [The rock occurs in North Carolina and the chemical analysis of the rock is taken up in detail].—Bull. A. I. M. E. July 1916; p 1237; pp 7*; 35c.

Watts, A. S.—*The Feldspars of New England and North Appalachian States.* [Goes into the lithology of feldspar rocks in general and gives nature of deposits by states. Methods of testing for quality and concentration of rocks are given]. U. S. Bur. of Mines Bull. 92; pp 181*; 35c.

Weinshenk, Ernst; Johannsen, Albert.—*The Fundamental Principles of Petrology.* [A translation of Weinshenk's book in German. But little is said with regard to the classification of rocks, but is more confined to the origin, present condition and decay of both igneous and sedimentary rocks].—McGraw-Hill Co.; book; pp 214*; $2.50.

Wells, Roger C.—*Experiments on the Extraction of Potash from Wyomingite.* [The mineral contains principally potash and alumina as a silicate].—U. S. G. S. Prof. Paper 98-D; pp 4.

Wherry, Edgar T.—*Notes on Alunite, Psilomelanite and Titanite.* [A description of the minerals, their chemical and physical properties, etc.].—Report No. 2145, U. S. National Museum; pp 8.

Young, George J.—*The Selection of a Method for Ore Treatment.* [On methods of testing and investigating new ores for refining treatment].—Met. & Chem. Engg. Sept. 15 1916; p 297; pp 2¾; 35c.

Young, S. W.; More, N. P.—*Laboratory Studies in Sulphide Ore Enrichment.* [The formation of chalcopyrite by artificial replacement].—Eco. Geol. Sept. 1916; p 574; pp 8*; 60c.

PART II.

ORES AND MINERAL PRODUCTS.

METALS AND METAL ORES.

CHAPTER II.

GOLD, SILVER AND PLATINUM.

GOLD

Gold Fields and Mining

Alderson, M. W.—*Mining Possibilities in Colombia, South America.* [The general conditions to be found in the country and ways of the people are dealt with].—Mg. World July 8 1916; p 51; pp 4*; 10c. in Colombia].—Mg. World Aug. 12 1916; Mg. World July 8 1916; p 51; pp 4*; Aug. 12 1916; p 281; pp 2¼*; Aug. 26 1916; p 367; pp 2¼*; 30c.

Austin, W. R.—*Boulder Breaking at a Placer Mine, British Columbia.* [Hand feed hammer drills are used for this work].—Mine & Quarry; Oct. 1916; p 922; pp 2*; 20c.

Ball, L. C.—*Maxwelton Goldfield.* [Reviews mining operations and production in the district].—Queen. Govt. Mg. Jnl. June 15 1916; p 261; pp 1¾*; 35c.

Ball, Lionel C.—*The Black Ridge, Clermont, Australia.* [Gives brief separate descriptions of the prospects of the Deep Ground].—Queen. Govt. Mg. Jnl. Sept. 15 1916; p 426; pp 8½*; 35c.

Bartels, Bergassessor.—*Russlands Gold, Platin, Blei, Silber und Zink Industrie im Jahre* 1912. [Russia's gold, platinum, lead, silver and zinc industry in 1912. The review includes the production of the metals in Russia, Greater Russia and Siberia].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 217; pp 5; $1.50.

Bastin, Edson S.—*The Gold Log Mine, Talladega County, Alabama.*—U. S. G. S. Bull. 640-I; pp 3.

Bell, Robert N.—*Rich Gold Ore Found in Idaho.* [Reviews the deposits and recent findings in the Atlanta district].—E. & M. J. Oct. 28 1916; p 783; pp 2¾; 25c.

Blackstone, Richard.—*A History of the Homestake Mine, S. D.* [Abst. from Pahasapa Quarterly. Reviews the progress of the company, mill and mines].—Mg. World July 15 1916; p 99; pp 3¼*; 10c.

Bradley, Walter W.—*Mines and Mineral Resources of Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma, and Yolo Counties, California.* [Separate descriptions of mines, deposits and operations of mines and plants].—Calif. Mg. Bur.; pp 208*.

Brinsmade, Robert B.—*Two Washington Mining Districts.* [The districts are known as Metaline Falls and Bald Mountain. Zinc, lead, copper and gold are found with some silver. The various properties and their activities are spoken of briefly].—M. & S. P. Nov. 18 1916; p 743; pp 2½*; 20c.

Bristol, J. J.—*Reduction of Stope Contours.* [The apparatus described accomplishes the result in one operation and is a plain pantograph for reduction with a cosine pantograph attached thereto].—E. & M. J. Dec. 16 1916; p 1053; pp 4*; 25c.

Brooks, Alfred H.—*Gold, Silver and Copper in Alaska in* 1915. [Discusses production and conditions in general and in detail by districts].—Min. Res. U. S. I: 8; pp 12.

Brooks, Alfred H.—*Mineral Resources of Alaska.* [Descriptions of mines and deposits, reviewing their production, geology and geography. The coal mining lease laws are also spoken of].—U. S. G. S. Bull. 642; pp 279*.

Brooks, Alfred H.—*Preliminary Report of the Tolovana District, Alaska.* [A description of the country, its geology and placer deposits].—U. S. G. S. Bull. 642-G; pp 9*.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal

mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Brown, G. Chester.—*Mines and Mineral Resources of Shasta, Siskiyou and Trinity Counties, California.* [Copper and gold are the principal minerals, though many others occur in the district].—Calif. Mg. Bur.; pp 192*.

Burrows, A. G.; Hopkins, P. E.—*Boston Creek Gold Area and Goodfish Lake Gold Area.* [The geology, mines and prospects and economic minerals of each area are considered separately].—Ont. Bur. of Mines Bull. No. 29; pp 24*.

Butler, B. S.—*Copper in* 1915. [A prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Butler, B. S.; Loughlin, G. F.—*A Reconnaissance of the Cottonwood-American Fork Mining Region, Utah.* [Notes on the history and production are given, with a detailed description of the formation and operations].—U. S. G. S. Bull. 620-I; pp 62*.

Capps, Stephen R.—*Gold Mining in the Willow Creek District, Alaska.* [Separate briefs on the prospects, claims, mines and companies in the district].—U. S. G. S. Bull. 642-F; pp 6; Mg. World Sept. 16 1916; p 499; pp 2; 10c.

Capps, Stephen R.—*The Turnagain-Knik Region, Alaska.* [On the geography, geology and mineral resources. Gold placers and gold-silver lodes are found in the district].—U. S. G. S. Bull. 642-E; pp 48*.

Chapin, Theodore; Canfield, George H. —*Mining Developments and Water-Power Investigation in Southeastern Alaska.* [The gold and copper mines are described by districts in which they are located and reviews are made of sources of water power].—U. S. G. S. Bull. 642-B; pp 55*.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine with respect to their production, activities, profits and costs].—T. & N. O. Commission, Toronto; Report; pp 71*.

Cook, Paul R.—*Cyaniding Clayey Ore at the Buckhorn Gold Mine, Nevada.* [Crushing, cyaniding and details of mining and milling costs per ton are considered].—Bull. A. I. M. E. Sept. 1916; p 1555; pp 9*; 35c.

Davis, H. E.—*Situation in the Oatman District, Arizona.*—Mg. & Oil Bull. July 1916; p 175; pp 6*; 25c.

De Wolf, William P.—*Reopening Old Mines in Arizona.*—Mg. World Aug. 19 1916; p 329; pp 2¼*; 10c.

De Wolf, William P.—*Yavapai County, Arizona, Mines and Mills.* [A general review of current conditions, with some detailed information].—Mg. World Sept. 16 1916; p 503; pp 1¼; 10c.

Duff, J. E. — *Northwestern Country Tributary to Spokane Is a Great Mineral Producer.* [Deals with the activities and results obtained at the various mines and plants in the area which includes British Columbia and United States]. — Mg. World Nov. 18 1916; p 871; pp 3¼*; 10c.

Dynan, John L.—*The White Caps Mine, Manhattan, Nevada.* [For the greater part the geology of the ore formation is described].—M. & S. P. Dec. 16 1916; p 884; pp 2*; 20c.

Eakin, H. M.; Mertie, J. B.; Harrington, G. L. — *The Cosna-Nowitna and Ruby-Kuskowin Regions, Alaska.* [The geology, geography and mineral resources of the country are first reviewed and followed by separate descriptions of the districts].—U. S. G. S. Bull. 642-H; pp 56*.

Eddy, Lewis H.—*The Argonaut Mine, California.* [On the installation of a dam for storing tailings, power pumps and expermiental work with flotation].—E. & M. J. Aug. 5 1916; p 265; pp 2¾*; 25c.

Eddy, Lewis H.—*Yuba No.* 15 *All-Steel Gold Dredge.* [A general detailed description of the dredge and its operation]. —E. & M. J. Aug. 19 1916; p 329; pp 2*; 25c.

Ferguson, Henry G.—*The Golden Arrow, Clifford and Ellendale Districts, Nye County, Nevada.* [Description of the geology and what little work has been done in the field].—U. S. G. S. Bull. 640-F; pp 11*.

Fulton, Charles H.—*The Buying and Selling of Ores and Metallurgical Products.* [Methods of sampling and the different ways in which ores are settled for and penalized are explained].—U. S. Bur. of Mines Tech. Paper 83; pp 42; 15c.

Gudgeon, C. W.—*The Scheelite Gold Mines of Otago, New Zealand.* [Several properties are described. In each the ore body, milling process and milling and mining costs are dealt with].—Proc. Aus. Inst. M. E. Nov. 21 1916; p 37; pp 14*; 65c.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. of U. S. I:15; pp 35.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reviews of the metals and activities in each of the counties in the state].—Min. Res. of U. S. I:17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Montana in* 1915. [Separate reports of each metal and briefs on the metals collectively for each county].—Min. Res. of U. S. I:19; pp 36.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [The production of each mineral is reviewed separate, as are the activities in each county of the state].—Min. Res. of U. S. I:15; pp 25.

Heikes, C. V.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reports of the metals and counties' activities and productions].—Min. Res. of U. S. I:17; pp 37.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in South Dakota and Wyoming in* 1915. [The report is made by counties, each state being considered separately].—Min. Res. of U. S. I:13; pp 13.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Each state is reviewed separately by counties and by separate metals for the state as a whole].—Min. Res. U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in Wyoming and South Dakota.* [Separate reviews of operations and production of the states are given with briefs on each county].—Min. Res. of U. S. 1:13; pp 14.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Both states are reviewed separately and separate reviews of the metals produced and operations by counties are included].—Min. Res. of U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in Colorado in* 1915. [Each metal is reviewed separately for the whole state and followed by reviews of the separate mines and mills by counties as regards their operation and production].—Min. Res. of U. S. I:16; pp 64.

Herr, Irving.—*Sampling Placer-Gravel Deposits.* [Describes the system by which the holes were placed and method of plotting the same].—E. & M. J. Aug. 5 1916; p 261; pp ¾*; 25c.

Hillen, A. G.—*Review of Conditions in the Eureka Mining District, Nevada.* [A general review of operations and conditions, both past and present].—Mg. World Sept. 30 1916; p 571; pp 4*; 10c.

Hurja, E. E.—*The Ketchikan District, Alaska.* [Reviews the progress and operations of the principal mines].—M. & S. P. July 29 1916; p. 163; pp 3*; 20c.

Jennings, Hennen; Janin, Charles.—*The History and Development of Gold Dredging in Montana.* [Mostly on the Ruby district. One chapter is confined to placer mining methods and operating costs].—U. S. Bur. of Mines Bull. 121; pp 63*; 40c.

Johnson, Bertrand L. — *Mining on Prince William Sound, Alaska.* [Gold, silver and copper mines and plants are reviewed separately by districts. Geology and mineralogy are reviewed in a general way].—U. S. G. S. Bull. 642-D; pp 9.

Lowell, F. L.—*Mines and Mineral Resources of Del Norte, Humboldt and Mendocino Counties, California.*. [Reviews operations in detail, locates separate deposits and describes them].—Calif. Mg. Bur.; pp 59*.

McCarty, Morris.—*Mount Baker Mining District, Washington.*—Mg. World Oct. 28 1916; p 745; pp 1; 10c.

McLaughlin, R. P.; Bradley, Walter C.; Brown, G. Chester; Lowell, F. L.—*Mines and Mineral Resources of Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin and Stanislaus Counties, California.* [Operations are included in separately describing mines, plants and unworked deposits].—Calif. Mg. Bur.; pp 220*.

Miller, Benjamin Leroy; Singewald, J. T.—*The Gold Mines of Brazil.* [The two most noted mines are described. The power question, mining and refining of the ore are dealt with].—E. & M. J. July 29 1916; p 207; pp 5*; 25c.

Mills, E. W.—*Leading Gold Mining Operations in Korea.* [Abstract of a paper read before the Korean branch of the Royal Asiatic Soc. Deals with the production, operation and history of several concessions in the country].—Mg. World Dec. 9 1916; p 989; pp 1½; 10c.; M. & S. P. Dec. 23 1916; p 915; pp 1¾*; 20c.

Moffit, Fred H.—*Mineral Resources of the Upper Chitina Valley, Alaska.* [A district in which copper and gold have been found, but which has been prospected but little].—U. S. G. S. Bull. 642-C; pp 8*.

Payne, Henry M.—*Mining the Frozen Gravels of the Arctic.* [A general account of operations, production, etc., in Siberia].—Sibley Jnl. Oct. 1916; p 2; pp 4½*; 30c.

Payne, H. M.—*Mining the Frozen Gravels of Siberia and the Yukon.* [Details of methods used, results obtained and costs of carrying on operations].—Bull. Mg. & Met. Soc. of Amer. Sept. 30 1916; p 204; pp 11½; 35c.

Payne, F. W.—*Dredging for Minerals.* [Deals with the past and present operation of dredges by different companies pointing out causes for their failure and success].—Mg. & Engg. Rev. Oct. 5 1916; p 17; pp 1¾; 35c.; Mg. World Dec. 16 1916; p 1029; pp 1½; 10c.

Platts, John B.—*Pocket-Hunting Applied to Prospecting.* [Refers to the locating of rich gold pockets].—M. & S. P. Aug. 26 1916; p 306; pp 1; 20c.

Plummer, W. L. — *Successful Dry Placer Operations at Plomosa, Arizona.* [Speaks of early operations and the present methods of dry crushing and concentrating. Tables using air instead of water are used].—Mg. World July 1 1916; p 1; pp 3*; 10c.

Purington, C. W.; Smith, R. E.—*Winter Sluicing at the Lenskoi Gold Mines, Siberia.* [Describes the methods and plant used for handling the frozen gravel by thawing and treating at once. Mining, construction and other operating costs are given].—Mg. Mag. Sept. 1916; p 143; pp 9*; 50c.

Rickard, T. A.—*Electrolytic Refining at Trail, British Columbia.* [The five more common metals are produced here and the nuisance of sulphur fumes is entirely absent].—M. & S. P. Dec. 23 1916; p 903; pp 5*; 20c.

Rose, Hugh.—*Mining Practice at Santa Gertrudis, Mexico.* [Abst. from the A. I. M. E. Bulletin. Contains drawings, details and general description].—E. & M. J. Aug. 26 1916; p 371; pp 6*; 25c.

Scott, W. A.—*Activity in the Goodsprings District, Nevada.* [Speaks briefly of the different mines in the district as regards their operations and production].—Mg. World Dec. 23 1916; p 1069; pp 3*; 10c.

Scott, W. A.—*El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Scott, W. A. — *Commonwealth Mine and Mill, Pearce, Arizona.* [Gives details on operations and description of methods used].—Mg. World July 29 1916; p 187; pp 1½*; 10c.

Sibley, Robert.—*The Most Powerful Dredge Afloat.* [The dredge is in California and is electrically operated].—Jnl. of Elect. Power & Gas Nov. 11 1916; p 371; pp 3¼*; 35c.

Smeeth, W. F.—*Annual Report for the Year* 1914. [Part I takes up production and general conditions of the industry, while Part II is more of a geological nature on several of the districts in the state].—Mysore Dept. of Mines and Geol.; pp 188*; $1.75.

Smith, Sumner S.—*The Cache Creek Dredge, Alaska.* [Describes the dredge, its fuel question and the handling of the gravel from the dredge in recovering the gold].—M. & S. P. Dec. 23 1916; p 908; pp 2*; 20c.

Spilman, C. F.—*Tom Reed Gold Mines Property, Arizona.* [A general description of the mine workings and formation with details is given].—Mg. World Dec. 23 1916; p 1073; pp 1½*; 10c.

Taylor, M. T.—*Deep-Lead and Drift Mining in Victoria, Australia.* [Describes methods and details of methods used in going underground for gravel].—Mg. Mag. Oct. 1916; p 207; pp 12*; 50c.

Weeks, Walter S.—*The Launching of the Yuba No.* 16 *Dredge, California.*—M. & S. P. Dec. 16 1916; p 872; pp 2*; 20c.

Weston, E. M.—*The Far East Rand Mines.* [A general review of the district and current operations in it].—Mg. & Engg. Rev. Oct. 5 1916; p 6; pp 2; 35c.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California in* 1915.—Min. Res. of U. S. I:10; pp 51.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California and Oregon in* 1915. [Reviews the production by counties and in general].—Min. Res. of U. S. I:10; pp 51.

——— *British Columbia Report of the Minister of Mines.* [On the production and mineral industry of the province].—Mg. & Engg. Rec. Oct. 1916; p 92; pp 1½; 35c.

——— *Consolidation of the Treadwell Mines, Alaska.* [Operating costs, production, description of the companies' holdings, etc., and items of financial interest are given].—M. & S. P. Aug. 26 1916; p 307; pp 7*; 20c.

———. *Gold Dredge at Hammonton, California.* [Reported as the largest ladder dredging bucket constructed].—Engg. Rec. June 24 1916; 20c.

——— *Gold Dredging in Yukon.* [Abstract of a paper published by the Minister of Interior Canada. The doings and equipment of operating companies in the district are reviewed].—Canadian Mg. Jnl. Nov. 15 1916; p 535; pp 10¾*; 35c.

——— *Gold Mining in War Time.* [A review of the conditions, prices and taxes in West Australia].—Monthly Jnl. Chamber of Mines West Aust. June 30 1916; p 108; pp 4½; 35c.

——— *Kleinfontein, South Africa.* [Deals with the future of the district and reviews the production, financial information and general mine operations in the district].—S. Afr. Mg. Jnl. Aug. 12 1916; p 440; pp 1¼*; 35c.

——— *Mining and Milling at the Santa Gertrudis, Mexico.* [The cyanide process is used here and the text is a discussion of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2197; pp 3; 35c.

——— *Placer Mining in Yukon, Methods and Costs of.* [Extract of a report published by the Minister of Interior, Ottawa, Ont.].—Canadian Mg. Jnl. Nov. 1 1916; p 506; pp 3¾; 35c.

——— *The Mount Morgan Mine and Works, Australia.* [Complete description of the geology, mining and concentrating plant of this mine once a gold mine but now copper].—Mg. & Engg. Rev. July 5 1916; p 244; pp 9*; 35c.

Milling, Metallurgy, Assaying, Etc.

Blackstone, Richard.—*A History of the Homestake Mine, S. D.* [Abst. from Pahasapa Quarterly. Reviews the progress of the company, mill and mines].—Mg. World July 15 1916; p 99; pp 3¼*; 10c.

Bradley, Walter W.—*Mines and Mineral Resources of Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma, and Yolo Counties, California.* [Separate descriptions of mines, deposits and operations of mines and plants].—Calif. Mg. Bur.; pp 208*.

Bryan, R. R.—*From Precipitate to Bullion.* [A description of the handling of gold from the time it is taken from the zinc-boxes till it is refined gold, which has passed through the furnace].—M. & S. P. Dec. 9 1916; p 834; pp 2½*; 20c.

Burrows, A. G.; Hopkins, P. E.—*Boston Creek Gold Area and Goodfish Lake Gold Area.* [The geology, mines and prospects and economic minerals of each area are considered separately].—Ont. Bur. of Mines Bull. No. 29; pp 24*.

Carpenter, Jay A.—*Ore Treatment at the West End, Tonopah, Nevada.* [Gives some costs and discusses in detail the results of operations rather than the methods].—M. & S. P. Aug. 5 1916; p 197; pp 1½; 20c.

Clevenger, G. H.—*Electrolytic Precipitation from Cyanide Solutions.* [A paper read before the American Electrochemical Soc.].—E. & M. J. Sept. 30 1916; p 579; pp 3½*; 25c.

Cook, Paul R.—*Cyaniding Clayey Ore at the Buckhorn Gold Mine, Nevada.* [Crushing, cyaniding and details of mining and milling costs per ton are considered].—Bull. A. I. M. E. Sept. 1916; p 1555; pp 9*; 35c.

De Wolf, William P.—*Yavapai County, Arizona, Mines and Mills.* [A general review of current conditions, with some detailed information].—Mg. World Sept. 16 1916; p 503; pp 1¼; 10c.

Duff, J. E.—*Northwestern Country Tributary to Spokane Is a Great Mineral Producer.* [Deals with the activities and results obtained at the various mines and plants in the area which includes British Columbia and United States].—Mg. World Nov. 18 1916; p 871; pp 3¼*; 10c.

Dunning, C. H.—*The Big Pine Cyanide Mill, Arizona.* [An 80-ton mill, making 90% extraction at $1.37 per ton. Lead, silver and gold, with no copper or zinc, makes up the ore].—E. & M. J. Dec. 16 1916; p 1043; pp 1¾*; 25c.

Eames, Luther B.—*Countercurrent Decantation.* [This article is also in the Bulletin of the Canadian Mg. Inst. The results of many tests are plotted into curves, showing the effect of many of the variables in the process of its efficiency].—A. I. M. E. Bull. Dec. 1916; p 2087; pp 15*; 35c.

Eddy, Lewis H.—*The Argonaut Mine, California.* [On the installation of a dam for storing tailings, power pumps and experimental work with flotation].—E. & M. J. Aug. 5 1916; p 265; pp 2¾*; 25c.

Edmands, H. R.—*Some Notes on the Effect of Lead Salts and of Varying Degree of Alkalinity on the Solvent Power of Cyanide Solution for Gold.* [The results of tests are tabulated and described].—Jnl. Chamber of Mines West Aust. April 29 1916; p 63; pp 8; 75c.

Gaebelein, P. W.—*Cyaniding Copper-Bearing Ores.* [On operations at the Baker Mines Co., Cornucopia, Ore].—E. & M. J. July 25 1916; p 22; pp 1¼*; 25c.

Gudgeon, C. W.—*Gold Scheelite Ore in New Zealand.* [Abst. from the bulletin of the Aust. I. M. E. The deposits and methods of concentration are described].—M. & S. P. July 22 1916; p 136; pp 1*; 20c.

Gudgeon, C. W.—*Milling Scheelite-Gold Ores.* [Abst. from a paper read before the Aust. Inst. of M. E. Flow sheets and costs are given, with description].—E. & M. J. Aug. 19 1916; p 346; pp 2*; 25c.

Gudgeon, C. W.—*The Scheelite Gold Mines of Otago, New Zealand.* [Sev-

eral properties are described. In each the ore body, milling process and milling and mining costs are dealt with].—Proc. Aus. Inst. M. E. No. 21 1916; p 37; pp 14*; 65c.

Hill, James M.—*Platinum and Allied Metals in* 1915. [Reviews production in general, by states and foreign countries. Methods of refining and extracting from other metals is spoken of briefly].—Min. Res. of U. S. I:6; pp 19.

Johnson, Bertrand L. — *Mining on Prince William Sound, Alaska.* [Gold, silver and copper mines and plants are reviewed separately by districts. Geology and mineralogy are reviewed in a general way].—U. S. G. S. Bull. 642-D; pp 9.

Lilburne, A. S.—*The Milling of Gold Ores.* [A general discussion regarding the general practices followed in Australia in the milling of gold ores].—Mg. & Engg. Rev. Nov. 6. 1916; p 33; pp 1¾; 35c.

Macdonald, William. — *Absorption of Gold by Plates.* [Speaks of the absorption of gold by copper amalgamating plates].—M. & S. P. Dec. 16 1916; p 689; pp 1½; 20c.

Magnus, B.—*Blast vs. Reverberatory Furnace.* [The advantages of the blast over the reverberatory furnace, as noted at Mount Morgan, Australia].—E. & M. J. Oct. 7 1916; p 668; pp 1½; 25c.

Mann, Horace T.; Clayton, C. Y.—*Cupellation Losses in Assaying.* [Contains considerable tabulated data and curves].—Mo. School of Mines Bull. II:3; pp 60*.

McCombie, J.—*The Milling of Gold Ores.* [Practical hints on various phases of the process].—Mg. & Engg. Rev. Oct. 5 1916; p 8; pp 1¼; 35c.

Miller, Benjamin Leroy; Singewald, J. T.—*The Gold Mines of Brazil.* [The two most noted mines are described. The power question, mining and refining of the ore are dealt with].—E. & M. J. July 29 1916; p 207; pp 5*; 25c.

Parker, S. M.—*Plant of the Babylonia Gold Mines, Nicaraugua.* [Detailed description of the cyanide plant which uses pneumatic stamps and the results obtained at the plant in the various steps of the process].—M. & S. P. Dec. 23 1916; p 911; pp 4*; 20c.

Pilgrim, Earl R.—*Flotation Tests on an Antimony Gold Ore.* [Tests conducted at the Washington College of Mines].—E. & M. J. Nov. 4 1916; p 820; pp ¾; 25c.

Plummer, W. L. — *Successful Dry Placer Operations at Plomosa, Arizona.* [Speaks of early operations and the present methods of dry crushing and concentrating. Tables using air instead of water are used].—Mg. World July 1 1916; p 1; pp 3*; 10c.

Power, Danvers F.—*Precipitation of Gold and Silver on Zinc Dust.* [A talk on the use of different forms of zinc for precipitation].—Mg. & Engg. Rev. Oct. 5 1916; p 10; pp 1½; 35c.

Rickard, T. A.—*Reopening of Old Mines Along the Mother Lode, California.* [A review of conditions past and present with cost and production figures given].—M. & S. P. Aug. 12 1916; p 236; pp 5½*; 20c.

Rose, Hugh. — *Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.; E. & M. J. Aug. 5 1916; p 263; pp 2*; 25c.; Aug. 26 1916; p 371; pp 6*; 75c.

Scott, W. A.—*Commonwealth Mine and Mill, Pearce, Arizona.* [Gives details on operations and description of methods used].—Mg. World July 29 1916; p 187; pp 1½*; 10c.

Shellshear, W.—Flotation at the Mt. Morgan Mine, Queensland, Australia. [A paper read before the Aust. Inst. of Mg. Eng. Operations are described though tests are given more consideration].—Mg. World Oct. 28 1916; p 741;

Smeeth, W. F.; Iyengar, P. S.—*Mineral Resources of Mysore, India.* [A brief account of the more important economic minerals, their occurrence and distribution, with notes on their mining and metallurgical treatment and uses].—Mysore Dept. of Mines & Geol. Bull. 7; pp 193; $1.50.

Smith, R. W.—*Flotation of Flour Gold.* [Gravity concentration failed with this lead-zinc-silver-gold ore. Flotation of slimes and treating the coarse portion by gravity concentration and electrostatic separation gave results].—E. & M. J. July 1 1916; p 25; pp 2¼*; 25c.

Wright, W. H.—*Flotation Experiments, Department of Research and Testing, Colorado School of Mines.* [Tables and curves showing the results of tests made on a lead-zinc-gold-silver-copper ore with many different oils].—Colo. School of Mines Qt'ly April 1916; p 1; pp 25*; 35c.

——— *Mining and Milling at the Santa Gertrudis, Mexico.* [The cyanide process is used here and the text is a discussion of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2197; pp 3; 35c.

——— *Nevada Packard Mines Co.'s Mill.*—Mg. World Oct. 21 1916; p 707; pp 1*; 10c.

——— *Some Notes on Lead Smelting in Tooele, Utah.* [A description of the International Smelting Co.'s plant].—E. & M. J. Dec. 23 1916; p 100; pp 1; 25c.

——— *The Influence of Silver Contents on Treatment of Gold Residues.* [From the W. A. Chamber of Mines Jnl., in which the results of tests made by the Great Boulder Perseverance Gold Co. are given and show that it is easier to dissolve the gold when the silver content is low].—Mg. & Engg. Rev. Nov. 6 1916; p 35; pp 1; 35c.

——— *The Mount Morgan Mine and Works, Australia.* [Complete description of the geology, mining and concentrating plant of this mine once a gold mine but now copper].—Mg. & Engg. Rev. July 5 1916; p 244; pp 9*; 35c.

Geology

Brooks, Alfred H.—*Preliminary Report of the Tolovana District, Alaska.* [A description of the country, its geology and placer deposits].—U. S. G. S. Bull. 642-G; pp 9*.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Burrows, A. G.; Hopkins, P. E.—*Boston Creek Gold Area.* [Brief descriptions of some of the properties and the general geology of the area].—Canadian Mg. Jnl. Aug. 15 1916; p 399; pp 3½*; 35c.

Capps, Stephen R.—*The Turnagain-Knik Region, Alaska.* [On the geography, geology and mineral resources. Gold placers and gold-silver lodes are found in the district].—U. S. G. S. Bull. 642-E; pp 48*.

DeLury, J. S.—*The Manigotagan Gold District, Manitoba.* [The geology is reviewed and the Rice Lake, Gold Lake and Long Lake areas are included in the district].—Canadian Mg. Jnl. Aug. 1 1916; p 362; pp 3*; 35c.

DeLury, J. S.—*The Mineral Belt North of the Pas, Manitoba.* [Mostly on the geology and nature of the deposits and country formation].—Canadian Mg. Jnl. Sept. 1 1916; p 412; pp 4*; 35c.

Draper, David.—*De Launay on Rand Gold.* [A discussion of De Launay's theory on the origin of gold in the conglomerates of the Rand district, South Africa].—Mg. Mag. July 1916; p 26; pp 5; 50c.

Dynan, John L.—*The White Caps Mine, Manhattan, Nevada.* [For the greater part the geology of the ore formation is described].—M. & S. P. Dec. 16 1916; p 884; pp 2*; 20c.

Eakin, H. M.; Mertie, J. B.; Harrington, G. L.—*The Cosna-Nowitna and Ruby-Kuskokwin Regions, Alaska.* [The geology, geography and mineral resources of the country are first reviewed and followed by separate descriptions of the districts].—U. S. G. S. Bull. 642-H; pp 56*.

Ferguson, Henry G.—*The Golden Arrow, Clifford and Ellendale Districts, Nye County, Nevada.* [Description of the geology and what little work has been done in the field].—U. S. G. S. Bull. 640-F; pp 11*.

Hubbard, J. D.—*The Quartz Veins of Butte County, California.*—E. & M. J. Aug. 19 1916; p 352; pp 2*; 25c.

Jones, Edward L., Jr.—*Reconnaissance of the Conconully and Ruby Mining Districts, Washington.* [The first half is on the geology, geography and nature of the deposits. The last half is separate descriptions of mines and prospects].U. S. G. S. Bull. 640-B; pp 26*.

Key, A. Cooper.—*The Rand's Ore Reserves.* [Description and tabulated information and data are given].—E. & M. J. Sept. 23 1916; p 557; pp 1¼; 25c.

Lang, Herbert.—*Black Sand of the Pacific Coast.* [Tells of the mode of occurrence of these deposits which are not of large tonnages, and discusses the possibilities of more extensively working them].—M. & S. P. Dec. 2 1916; p 811; pp 2¾; 20c.

Lowell, F. L.—*Mines and Mineral Resources of Del Norte, Humboldt and Mendocino Counties, California.* [Reviews operations in detail, locates separate deposits and describes them].—Calif. Mg. Bur.; pp 59*.

McLaughlin, R. P.; Bradley, Walter C.; Brown, G. Chester; Lowell, F. L.—*Mines and Mineral Resources of Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin and Stanislaus Counties, California.* [Operations are included in separately describing mines, plants and unworked deposits].—Calif. Mg. Bur.; pp 220*.

Merrill, Frederick J. H.—*Geology and Mineral Resources of San Diego and Imperial Counties.* [Though gold is the principal metal mined considerable is done in the non-metallic industry].—Calif. Mg. Bur.; pp 113*.

Moffit, Fred H.—*Mineral Resources of the Upper Chitina Valley, Alaska.* [A district in which copper and gold have been found, but which has been pros-

pected but little].—U. S. G. S. Bull. 642-C; pp 8*.

Paige, Sidney.—*Silver City, New Mexico, Folio.* [Large separate maps of the quadrangle, with a geologic description of the formation and ore deposits].—U. S. G. S. Folio No. 199; pp 19*.

Palmer, Leroy A.—*The Oatman District, Arizona.* [On the geology and nature of the deposits and genesis of the ores].—M. & S. P. Aug. 5 1916; p 193; pp 3½*; 20c.

Payne, Henry M.—*Mining the Frozen Gravels of the Arctic.* [A general account of operations, production, etc., in Siberia].—Sibley Jnl. Oct. 1916; p 2; pp 4½*; 30c.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Schrader, Frank C.—*Geology and Ore Deposits of Mohave County, Arizona.* [Published by permission of the U. S. G. S. Geology of the district and of several of the mines with figures on their production is given].—Bull. A. I. M. E. Nov. 1916; p 1935; pp 33*; 35c.

Scott, W. A.—*El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¼*; 10c.

Smeeth, W. F.—*Annual Report for the Year* 1914. [Part I takes up production and general conditions of the industry, while Part II is more of a geological nature on several of the districts in the state].—Mysore Dept. of Mines and Geol.; pp 188*; $1.75.

Smeeth, W. F.; Iyengar, P. S.—*Mineral Resources of Mysore, India.* [A brief account of the more important economic minerals, their occurrence and distribution, with notes on their mining and metallurgical treatment and uses].—Mysore Dept. of Mines & Geol. Bull. 7; pp 193; $1.50

Spencer, Arthur C.—*The Atlantic Gold District and North Laramie Mountains, Fremont, Converse and Albany Counties, Wyoming.*—U. S. G. S. Bull. 626; pp 85*.

Spurr, J. H.—*The Relation of Ore-Deposition to Faulting.* [Sights various observations of this form of genesis of ore as noted in the field].—Eco. Geol. Nov. 1916; p 601; pp 22; 60c.

Tucker, W. B.—*Mines and Mineral Resources of Amador, Calaveras, Tuolumne.* [Economic mineral products are reviewed by separate descriptions of deposits and mines, with some information on the condition of the country].—Calif. Mg. Bur.; pp 180*.

Wallace, R. C.; DeLury, J. S.—*The Mineral Belt North of the Pas, Northwestern Manitoba and Eastern Saskatchewan.* [Abst. of a report of the Manitoba Public Utilities Commission].—Canadian Mg. Inst. Bull. Oct. 1916; p 884; pp 6½; 35c.

Way, Herbert, W. L.—*The Minerals of Sze-Chuan, China.* [Brief description of the deposits, their possibilities and operation. Salts have been mined, petroleum is plentiful and gold, silver and copper give promise].—Mg. Mag. July 1916; p. 20; pp 4*; 50c.

Miscellaneous

Bain, H. Foster.—*The Far Rand and the Government.* [Comments on the ideas of the South African government regarding the district].—Mg. Mag. Aug. 1916; p 84; pp 8¾; 50c.

Bryan, R. R.—*From Precipitate to Bullion.* [A description of the handling of gold from the time it is taken from the zinc-boxes till it is refined gold, which has passed through the furnace].—M. & S. P. Dec. 9 1916; p 834; pp 2½*; 20c.

Gaby, W. E.—*Petrography of the Mount Morgan Mine, Queensland, Australia.*—Bull. A. I. M. E. Sept. 1916; p 1725; pp 20*; 35c.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reviews of the metals and activities in each of the counties in the state].—Min. Res. of U. S. I:17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [The production of each mineral is reviewed separate, as are the activities in each county of the state].—Min. Res. of U. S. I:15; pp 25.

Kotze, R. N.—*Far East Rand and Suggested Changes in the Gold Law.* [Abst. from a South African government report taking up operations and production with respect to suggested law].—Mg. Mag. Aug. 1916; p 75; pp 9*; 50c.

McBride, D.—*A Trip Through Honduras, C. A.* [Deals mainly with the people, means of travel and accommodations, with more brief notes on copper and gold found in the country].—E. & M. J. Nov. 11 1916; p 851; pp 3½*; 25c.

Scott, W. A.—*The Roosevelt Tunnel and Cripple Creek Mine Operations.* [Reviews the operations and equipment at

the properties of the district].—Mg. World Oct. 7 1916; p 613; pp 5*; 10c.

Sisley, George E.—$137,849,595 *in Dividends by Mines and Works in Half Year.* —Mg. World Aug. 5 1916; p 223; pp 5¾*; 10c.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

Production

Ball, L. C.—*Maxwelton Goldfield.* [Reviews mining operations and production in the district].—Queen. Govt. Mg. Jnl. June 15 1916; p 261; pp 1¾*; 35c.

Bartels, Bergassessor.—*Russlands Gold, Platin, Blei, Silber und Zink Industrie im Jahre* 1912. [Russia's gold, platinum, lead, silver and zinc industry in 1912. The review includes the production of the metals in Russia, Greater Russia and Siberia].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 217; pp 5; $1.50.

Brooks, Alfred H.—*Gold, Silver and Copper in Alaska in* 1915. [Discusses production and conditions in general and in detail by districts].—Min. Res. U. S. I:8; pp 12.

Brooks, Alfred H.—*Mineral Resources of Alaska.* [Descriptions of mines and deposits, reviewing their production, geology and geography. The coal mining lease laws are also spoken of].—U. S. G. S. Bull. 642; pp 279*.

Butler, B. S.—*Copper in* 1915. [A prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Butler, B. S.; Loughlin, G. F.—*A Reconnaissance of the Cottonwood-American Fork Mining Region, Utah.* [Notes on the history and production are given, with a detailed description of the formation and operations].—U. S. G. S. Bull. 620-I; pp 62*.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. of U. S. I:15; pp 35.

Heikes, C. V.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reports of the metals and counties' activities and productions].—Min. Res. of U. S. I:17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Montana in* 1915. [Separate reports of each metal and briefs on the metals collectively for each county].—Min. Res. of U. S. I:19; pp 36.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in South Dakota and Wyoming in* 1915. [The report is made by counties, each state being considered separately].—Min. Res. of U. S. I:13; pp 13.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Each state is reviewed separately by counties and by separate metals for the state as a whole].—Min. Res. U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in Wyoming and South Dakota.* [Separate reviews of operations and production of the states are given with briefs on each county].—Min. Res. of U. S. I:13; pp 14.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Both states are reviewed separately and separate reviews of the metals produced and operations by counties are included].—Min. Res. of U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in Colorado in* 1915. [Each metal is reviewed separately for the whole state and followed by reviews of the separate mines and mills by counties as regards their operation and production].—Min. Res. of U. S. I:16; pp 64.

Hill, James M.—*Platinum and Allied Metals in* 1915. [Reviews production in general, by states and foreign countries. Methods of refining and extracting from other metals is spoken of briefly].—Min. Res. of U. S. I:6; pp 19.

Jimenez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150*.

Rickard, T. A.—*Reopening of Old Mines Along the Mother Lode, California.* [A review of conditions past and present with cost and production figures given].—M. & S. P. Aug. 12 1916; p 236; pp 5½*; 20c.

Ryan, Edward.—*Biennial Report of the State Inspector of Mines, Nevada,* 1913-1914. [An account of the metal production by counties and separate descriptions of accidents].—Report; pp 52.

Schrader, Frank C.—*Geology and Ore Deposits of Mohave County, Arizona.* [Published by permission of the U. S. G.

S. Geology of the district and of several of the mines with figures on their production is given].—Bull. A. I. M. E. Nov. 1916; p 1935; pp 33*; 35c.; M. & S. P. Nov. 18 1916; p 733; pp 5; 20c.

Scott, W. A.—*Activity in the Goodsprings District, Nevada.* [Speaks briefly of the different mines in the district as regards their operations and production].—Mg. World Dec. 23 1916; p 1069; pp 3*; 10c.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California in* 1915.—Min. Res. of U. S. I:10; pp 51.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California and Oregon in* 1915. [Reviews the production by counties and in general].—Min. Res. of U. S. I:10; pp 51.

——— *British Columbia Report of the Minister of Mines.* [On the production and mineral industry of the province].—Mg. & Engg. Rec. Oct. 1916; p 92; pp 1½; 35c.

——— *California Mineral Production.*—E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

——— *Great Gold Mines on the Rand, South Africa.* [Treats on their production].—M. & S. P. Sept. 2 1916; p 332; pp 4¼*; 20c.

——— *Kleinfontein, South Africa.* [Deals with the future of the district and reviews the production, financial information and general mine operations in the district].—S. Afr. Mg. Jnl. Aug. 12 1916; p 440; pp 1¼*; 35c.

——— *Metal Production of Ontario, First Half of* 1916.—Mg. World Oct. 7 1916; p 626; pp 1; 10c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *Mysore State Report of the Chief Inspector of Mines for* 1914.—Mysore Dept. of Mines and Geol.; pp 51; $1.25.

——— *New South Wales in* 1915. [Reviews the production of metals in the country].—Mg. Jnl. Sept. 2 1916; p 596; pp 2; 35c.

——— *Ontario's Metal Production.* [From the Canadian Bureau of Mines reports].—Canadian Mg. Jnl. Dec. 1 1916; p 555; pp 1¼; 35c.

——— *Pretoria Inspectorate of Mines* 1915 *Annual Report.*—S. Afr. Mg. Jnl. Oct. 7 1916; p 122; pp 1; 35c.

——— *Rhodesia Chamber of Mines, Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau].—Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Rhodesia Chamber of Mines Executive Committee Report and Output of Gold and Other Minerals in April,* 1916. [The output of separate producers is given].—Rhodesia Chamber of Mines Report April 1916; pp 5.

——— *Rhodesia Chamber of Mines Report of the Executive Committee.* [Tables of details on the production of gold and asbestos properties in the district are given].—Rhodesia Chamber of Mines Report Aug. 1916; pp 6.

——— *Rhodesia Output of Gold and Other Metals and Minerals, July,* 1916.—Rhodesia Chamber of Mines Report; pp 6; 35c.

———. *Rhodesia Report of the Executive Committee of the Chamber of Mines and Production of Gold and other Minerals in May* 1916. [The production of operating gold companys are given individually].—Rhodesia Chamber of Mines Report May 1916; pp 6.

——— *Southern Rhodesia Geological Survey's Report for* 1915: [Reprint of the report].—S. Afr. Mg. Jnl. July 8 1916; p 340; pp 1; 35c.

——— *Transvaal Chamber of Mines August Analysis of Gold Production.* [Tonnage, yield, working costs, profits, dividends, etc., are given separately in tabulated form for each company].—Transvaal Chamber of Mines Aug. Report; pp 6.

——— *Transvaal Chamber of Mines Report for* 1915. [A general account of the mineral industry in the state].—Transvaal Chamber of Mines Report.

——— *United States Mint, Report of the Director for the Year of* 1916. [A report of the production of precious metals for 1915 and the Mint's operations to June 30, 1916].—Treasury Dept. Annual Report of Mint; pp 286.

SILVER

Mines and Mining

Blood, Clifford C.—*Pinos Altos District, Grant County, New Mexico.* [A description of the district, its properties and their operation].—Mg. World Oct. 14 1916; p 659; pp 2*; 10c.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal

mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Butler, B. S.—*Copper in* 1915. [A prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine with respect to their production, activities, profits and costs].—T. & N. O. Commission, Toronto; Report; pp 71*.

De Wolf, William P.—*Yavapai County, Arizona, Mines and Mills.* [A general review of current conditions, with some detailed information].—Mg. World Sept. 16 1916; p 503; pp 1¼; 10c.

Duff, J. E.—*Northwestern Country Tributary to Spokane Is a Great Mineral Producer.* [Deals with the activities and results obtained at the various mines and plants in the area which includes British Columbia and United States].—Mg. World Nov. 18 1916; p 871; pp 3¼*; 10c.

Dunlop, J. P.; Butler, B. S.—*Silver, Copper, Lead and Zinc in the Central States in* 1915. [Separate reviews of the area, districts, states and companies].—Min. Res. of U. S. I:5; pp 93.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. of U. S. I:15; pp 35.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reviews of the metals and activities in each of the counties in the state].—Min. Res. of U. S. I:17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Montana in* 1915. [Separate reports of each metal and briefs on the metals collectively for each county].—Min. Res. of U. S. I:19; pp 36.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [The production of each mineral is reviewed separate, as are the activities in each county of the state].—Min. Res. of U. S. I:15; pp 25.

Heikes, C. V.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reports of the metals and counties' activities and productions].—Min. Res. of U. S. I:17; pp 37.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in South Dakota and Wyoming in* 1915. [The report is made by counties, each state being considered separately].—Min. Res. of U. S. I:13; pp 13.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Each state is reviewed separately by counties and by separate metals for the state as a whole].—Min. Res. U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in Wyoming and South Dakota.* [Separate reviews of operations and production of the states are given with briefs on each county].—Min. Res. of U. S. I:13; pp 14.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Both states are reviewed separately and separate reviews of the metals produced and operations by counties are included].—Min. Res. of U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in Colorado in* 1915. [Each metal is reviewed separately for the whole state and followed by reviews of the separate mines and mills by counties as regards their operation and production].—Min. Res. of U. S. I:16; pp 64.

Higgins, W. C.—*Operations at the South Hecla Mine at Alta, Utah.*—S. L. Mg. Rev. Aug. 15 1916; p 15; pp 2⅓*; 25c.

Hillen, A. G.—*Mines and Mining Operations at Ely, Nevada.* [A review of operations, with specific information on power equipment being used].—Mg. World Sept. 2 1916; p 403; pp 5*; 10c.

Hillen, A. G.—*Review of Conditions in the Eureka Mining District, Nevada.* [A general review of operations and conditions, both past and present].—Mg. World Sept. 30 1916; p 571; pp 4*; 10c.

Johnson, Bertrand L. — *Mining on Prince William Sound, Alaska.* [Gold, silver and copper mines and plants are reviewed separately by districts. Geology and mineralogy are reviewed in a general way].—U. S. G. S. Bull. 642-D; pp 9.

Larson, A. G.; Lakes, Arthur, Jr.—*Slocan Star Mine, British Columbia.* [Abstract of a report made by the authors on this mine, in which details regarding it are given].—Mg. & Engg. Rec. Oct. 1916; p 96; pp 4¼*; 35c.

McCarthy, Morris.—*Mount Baker Mining District, Washington.*—Mg. World Oct. 28 1916; p 745; pp 1; 10c.

McDonald, P. B.—*Mining Around Lovelock, Nevada.* [Costs and accounts of the silver properties in the district, with some information on their production is given. The principal companies are Rochester and Seven Troughs Coalition].—M. & S. P. July 1 1916; p 14; pp 2*; 20c.

Miller, Benjamin L.; Singewald, Joseph T., Jr.—*The Huayni-Potosi Bismuth-Tin Mines in Bolivia.* [Other minerals occur, though these are the principal ones. Mining, milling and operations and conditions in the district in general are reviewed].—E. & M. J. Dec. 16 1916; p 1065; pp 3*; 25c.

Palmer, L. A.—*The Yellow Pine District, Nev.* [Describes the district, its geology and nature of the ore deposits found there. The systems of mining and milling are then reviewed and some details given].—E. & M. J. July 15 1916; p 123; pp 3*; 25c.

Rickard, T. A.—*The Blue Bell Mine, Riondel, B. C.* [The history and transaction which have taken part in the operating of this old silver-lead-zinc property are told in detail].—M. & S. P. Nov. 25 1916; p 765; pp 2½*; 20c.

Root, W. A.—*Aspen, Over the Range in Pitkin County, Colorado.* [The history of the camp and several of the companies operating in it are included in the description].—Mg. World Dec. 2 1916; p 943; pp 2¾*; 10c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description, with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.

Saint-Smith, Cecil E.—*The Tinto Copper Syndicate's Mine, Montalbion Irvinebank District, Australia.* [A complete description of the mine workings].—Queen. Gov't Mg. Jnl. July 15 1916; p 316; pp 2¾*; 35c.

Saint-Smith, E. C.—*Kangaroo Hill Mineral Field, North Queensland, Australia.* [Notes on several of the mines in this area].—Queens. Govt. Mg. Jnl. Nov. 15 1916; p 534; pp 5½*; 35c.

Scott, W. A.—*Commonwealth Mine and Mill, Pearce, Arizona.* [Gives details on operations and description of methods used].—Mg. World July 29 1916; p 187; pp 1½*; 10c.

Scott, W. A.—*El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Scott, W. A.—*Notes on the Park City Mines and Mills, Utah.* [Describes several operating companies' operations].—Mg. World Sept. 2 1916; p 411; pp 1¾; 10c.

Scott, W. A.—*Operations at Battle Mountain, Nevada.*—Mg. World Aug. 19 1916; p 327; pp 2*; 10c.

Scott, W. A.—*Operations in the Tintic District, Utah.* [Describes the district and its operations in general, and then gives separate descriptions of the operations and methods of some of the companies].—Mg. World Sept. 30 1916; p 583; pp 1¾; 10c.

Scott, W. A.—*Operations of Silver King Coalition Mines Co., Park City, Utah.* [A general description of operations and equipment, including pumping and hoisting].—Mg. World Sept. 9 1916; p 447; pp 3*; 10c.

Scott, W. A.—*The Tonopah Extension Mines in Nevada.*—Mg. World Nov. 11 1916; p 831; pp 1; 10c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*Silver-Tin Mining in Bolivia.* [Old stope filling is being taken out, chloridized, leached and then concentrated for the tin residue].—E. & M. J. Sept. 23 1916; p 533; pp 3*; 25c.

Singewald, Joseph E.; Miller, Benjamin L.—*Prominent Mines of Junin, Peru.* [Three mines in the same district are described as regards their ore deposits. One is vanadium, one bismuth and the last silver].—E. & M. J. Sept. 30 1916; p 583; pp 4¼*; 25c.

Singewald, Joseph T., Jr.; Miller, Benjamin LeRoy.—*The Morococha and Casapalca Districts, Peru.* [A general review of the mines and their activities. Copper, silver and zinc are produced].—E. & M. J. Nov. 18 1916: p 889; pp 4½*; 25c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Mining Industry of Bolivia.* [A general description, with some details of the people, geography of the country and operation and production of the mines].—E. & M. J. Dec. 9 1916; p 1005; pp 5*; 25c.

Way, Herbert, W. L.—*The Minerals of Sze-Chuan, China.* [Brief description of the deposits, their possibilities and operation. Salts have been mined, petroleum is plentiful and gold, silver and copper give promise].—Mg. Mag. July 1916; p 20; pp 4*; 50c.

——— *Canadian Mining Corporation.* [Cost and other details of operation].—E. & M. J. Aug. 19 1916; p 348; pp 1¼; 25c.

——— *Mining and Milling at the Santa Gertrudis, Mexico.* [The cyanide process is used here and the text is a discussion

of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2197; pp 3; 35c.

——— *New South Wales Department of Mines: Annual Report for* 1915. [A general review of mine operations and activities during the year].—N. S. W. Dept. of Mines, Sydney.

——— *Rhodesia Chamber of Mines, Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau]. —Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Sullivan Mine, East Kootenay, B. C.* [A description of mine operations and production, with an account of the geology of the formation and nature and occurrence of the ore bodies].—Canadian Mg. Jnl. Sept. 15 1916; p 444; pp 2¼; 35c.

Ore Dressing, Metallurgy, Refining, Leaching, Etc.

Carpenter, Jay A.—*Ore Treatment at the West End, Tonopah, Nevada.* [Gives some costs and discusses in detail the results of operations rather than the methods].—M. & S. P. Aug. 5 1916; p 197; pp 1½; 20c.

Daman, Arthur C.—*The Nevada Wonder Mill.* [Describes a 150-ton cyanide process, where 10 tons per man per day are handled. The distribution of electric power is contained in tables].—E. & M. J. Nov. 25 1916; p 927*; pp 2*; 25c.

De Wolf, William P.—*Yavapai County, Arizona, Mines and Mills.* [A general review of current conditions, with some detailed information].—Mg. World Sept. 16 1916; p 503; pp 1¼; 10c.

Dunning, C. H.—*The Big Pine Cyanide Mill, Arizona.* [An 80-ton mill making 90% extraction at $1.37 per ton. Lead, silver and gold, with no copper or zinc, makes up the ore].—E. & M. J. Dec. 16 1916; p 1043; pp 1¾*; 25c.

Handy, R. S.—*Bunker Hill & Sullivan Milling Data.* [Flow sheets and drawings, with brief description of operations and detailed cost sheet are dealt with].—E. & M. J. July 1 1916; p 35; pp 2¼*; 25c.

Higgins, Will C.—*New Milling Plant of Big Four Exploration at Park City, Utah.* —S. L. Mg. Rev. Aug. 30 1916; p 13; pp 3*; 25c.

Higgins, W. C. — *Operations at the South Hecla Mine at Alta, Utah.*—S. L. Mg. Rev. Aug. 15 1916; p 15; pp 2½*; 25c.

Hughes, Ben. — *Concentrating Cobalt Silver Ores by the Oil Flotation Process.* [Brief descriptions of plants using the system in the Cobalt district, Ontario].—Canadian Mg. Jnl. Aug. 1 1916; p 365; pp ¾; 35c.

King, J. T.—*Pulp and Metallic Assays.* [Abstract from the Jnl. of Am. Chem. Soc. Derives a formula for computing the value per ton from the assay of metallics which carry the ore's values and is separated from the pulp].—E. & M. J. Nov. 4 1916; p 827; pp ¾; 25c.

Mann, Horace T.; Clayton, C. Y.—*Cupellation Losses in Assaying.* [Contains considerable tabulated data and curves].—Mo. School of Mines Bull. II:3; pp 60*.

Neal, Walter.—*The Manganese and Silver Problem.* [Notes on investigations made to find a satisfactory method for treating silver-manganese ores].—Jnl. Chem., Met. & Mg. Soc. Aug. 1916; p 9; pp 9½; 35c.

Palmer, L. A.—*The Yellow Pine District, Nev.* [Describes the district, its geology and nature of the ore deposits found there. The systems of mining and milling are then reviewed and some details given].—E. & M. J. July 15 1916; p 123; pp 3*; 25c.

Parodi, Lorenzo.—*Ricordi e Note Sulla Metallurgia Italiana.* [A record of the metallurgical production of metals in Italy during 1914 and 1915].—Metallurgia Ital. April 30 1916; p 260; pp 15; $1.

Power, Danvers F.—*Precipitation of Gold and Silver on Zinc Dust.* [A talk on the use of different forms of zinc for precipitation].—Mg. & Engg. Rev. Oct. 5, 1916; p 10; pp 1½; 35c.

Rickard, T. A.—*Electrolytic Refining at Trail, British Columbia.* [The five more common metals are produced here and the nuisance of sulphur fumes is entirely absent].—M. & S. P. Dec. 23 1916; p 903; pp 5*; 20c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description, with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.

Scott, W. A. — *Commonwealth Mine and Mill, Pearce, Arizona.* [Gives details on operations and description of methods used].—Mg. World July 29 1916; p 187; pp 1½*; 10c.

Scott, W. A.—*Concentrating Mill Tailings near Park City, Utah.* [Concentration and haulage are dealt with. To get rid of zinc considerable of the lead and silver was lost formerly].—Mg. World Aug. 26 1916; p 359; pp 2½*; 10c.

Scott, W. A.—*El Dorado Canyon—*

Mining, Milling and Development. [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Scott, W. A.—*Notes on the Park City Mines and Mills, Utah.* [Describes several operating companies' operations].—Mg. World Sept. 2 1916; p 411; pp 1¾; 10c.

Scott, W. A.—*Operations at Battle Mountain, Nevada.*—Mg. World Aug. 19 1916; p 327; pp 2*; 10c.

Scott, W. A.—*Operations in the Tintic District, Utah.* [Describes the district and its operations in general, and then gives separate descriptions of the operations and methods of some of the companies].—Mg. World Sept. 30 1916; p 583; pp 1¾; 10c.

Scott, W. A. — *Operations of Silver King Coalition Mines Co., Park City, Utah.* [A general description of operations and equipment, including pumping and hoisting].—Mg. World Sept. 9 1916; p 447; pp 3*; 10c.

Scott, W. A.—*Sulphidizing Carbonate Tailings for Treatment by Oil Flotation.* [While being agitated the crushed ore as carbonate is changed to a metallic sulphide by the addition of sodium sulphide].—Mg. World Dec. 2 1916; p 946; pp 1; 10c.

Scott, W. A.—*The Tonopah Extension Mines in Nevada.*—Mg. World Nov. 11 1916; p 831; pp 1; 10c.

Sherwood, C. F.—*New Flotation Plant of the Prince Consolidated Co., Nevada.*—S. L. Mg. Rev. Aug. 30 1916; p 17; pp 1*; 25c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*Silver-Tin Mining in Bolivia.* [Old stope filling is being taken out, chloridized, leached and then concentrated for the tin residue].—E. & M. J. Sept. 23 1916; p 533; pp 3*; 25c.

Thomson, Herbert G. — *Construction and Operation of the Nevada Packard Mill.* [A cyanide plant treating ore in which the principal mineral is cerargyrite].—M. & S. P. Sept. 9 1916; p 377; pp 8*; 20c.

White, H. A.—*The Manganese Silver Problem.* [Discussion of a paper by W. Neal on why low extraction only can be obtained in extracting silver in the presence of manganese].—Jnl. Chem. Met. & Mg. Soc. of S. Afr. Sept. 1916; p 39; pp 2¼; 50c.

Wright, W. H.—*Flotation Experiments, Department of Research and Testing, Colorado School of Mines.* [Tables and curves showing the results of tests made on a lead-zinc-gold-silver-copper ore with many different oils].—Colo. School of Mines Qt'ly April 1916; p 1; pp 25*; 35c.

——— *French Electrolytic Process.*—Mg. World Sept. 9 1916; p 450; pp ¾; 10c.

——— *Mining and Milling at the Santa Gertrudis, Mexico.* [The cyanide process is used here and the text is a discussion of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2197; pp 3; 35c.

——— *Nevada Packard Mines Co.'s Mill.*—Mg. World Oct. 21 1916; p 707; pp 1*; 10c.

——— *Some Notes on Lead Smelting in Tooele, Utah.* [A description of the International Smelting Co.'s plant].—E. & M. J. Dec. 23 1916; p 1100; pp 1; 25c.

——— *The Influence of Silver Contents on Treatment of Gold Residues.* [From the W. A. Chamber of Mines Jnl., in which the results of tests made by the Great Boulder Perseverance Gold Co. are given and show that it is easier to dissolve the gold when the silver content is low].—Mg. & Engg. Rev. Nov. 6 1916; p 35; pp 1; 35c.

Geology

Butler, B. S.; Loughlin, G. F.—*A Reconnaisance of the Cottonwood-American Fork Mining Region, Utah.* [Notes on the history and production are given, with a detailed description of the formation and operations].—U. S. G. S. Bull. 620-I; pp 62*.

Capps, Stephen R.—*The Turnagain-Knik Region Alaska.* [On the geography, geology and mineral resources. Gold placers and gold-silver lodes are found in the district].—U. S. G. S. Bull. 642-E; pp 48*.

Loveman, M. H.—*The Geology of the Bawdwin Mines, Burma, Asia.* [Complete, detailed description of these lead-zinc sulphide deposits which have been worked since ancient times is given].—A. I. M. E. Bull. Dec. 1916; p 2119; pp 25*; 35c.

Moore, E. S.—*Observations on the Geology of the Broken Hill Lode, New South Wales.* [A complete geologic description of the formation, ore deposits and nature of the ore, citing instances at particular mines].—Eco. Geol. June 1916; p 327; pp 22*; 60c.

Paige, Sidney.—*Silver City, New Mexico, Folio.* [Large separate maps of the quadrangle, with a geologic description of the formation and ore deposits].—U. S. G. S. Folio No. 199; pp 19*.

Reid, J. H.—*The Comet Mine, Sundown, Ballandean, Queensland, Australia.*

[A geological description of the ore deposits and ore].—Queen. Govt. Mg. Jnl. June 15 1916; p 258; pp 2*; 35c.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Mining Industry of Bolivia.* [A general description, with some details of the people, geography of the country and operation and production of the mines].—E. & M. J. Dec. 9 1916; p 1005; pp 5*; 25c.

Way, Herbert, W. L.—*The Minerals of Sze-Chuan, China.* [Brief description of the deposits, their possibilities and operation. Salts have been mined, petroleum is plentiful and gold, silver and copper give promise].—Mg. Mag. July 1916; p 20; pp 4*; 50c.

Miscellaneous

Caesar, G. V.; Gerner, G. C.—*The Annealing Properties of Copper at Temperatures Below* 500 *Degrees, with Particular Reference to the Effect of Oxygen and of silver.*—A. I. of Metals Adv. Paper No. 6; pp 43*; 35c.

Fulton, Charles H.—*The Buying and Selling of Ores and Metallurgical Products.* [Methods of sampling and the different ways in which ores are settled for and penalized are explained].—U. S. Bur. of Mines Tech. Paper 83; pp 42; 15c.

Miller, Benjamin L.; Singewald, J. T., Jr.—*Exploitation of Chilean Mines.* [Treats on the industries from an economic and industrial standpoint].—E. & M. J. Aug. 12 1916; p 289; pp 4¼*; 25c.

Sisley, George E.—$137,849,595 *in Dividends by Mines and Works in Half Year.* —Mg. World Aug. 5 1916; p 223; pp 5¾*; 10c.

Spurr, J. E.—*The Relation of Ore-Deposition to Faulting.* [Sights various observations of this way of genesis of ore as noted in the field].—Eco. Geol. Nov. 1916; p 601; pp 22; 60c.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

Production

Bartels, Bergassessor.—*Russlands Gold, Platin, Blei, Silber und Zink Industrie im Jahre,* 1912. [Russia's gold, platinum, lead, silver and zinc industry in 1912. The review includes the production of the metals in Russia, Greater Russia and Siberia].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 217; pp 5; $1.50.

Bell, Robert N.—*Mining Industry of Idaho for* 1915. [A general review of the industry in the state and separate reviews of the advances and doings of different mines].—Annual Report of Inspector of Mines 1915; pp 134*.

Brooks, Alfred H.—*Gold, Silver and Copper in Alaska in* 1915: [Discusses production and conditions in general and in detail by districts].—Min. Res. U. S. I:8; pp 12.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Butler, B. S.—*Copper in* 1915. [A prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine with respect to their production, activities, profits and costs].—T. & N. O. Commission, Toronto; Report; pp 71*.

Dunlop, J. P.; Butler, B. S.—*Silver, Copper, Lead and Zinc in the Central States in* 1915. [Separate reviews of the area, districts, states and companies].—Min. Res. of U. S. I:5; pp 93.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. of U. S. I:15; pp 35.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reviews of the metals and activities in each of the counties in the state].—Min. Res. of U. S. I:17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Montana in* 1915. [Separate reports of each metal and briefs on the metals collectively for each county].—Min. Res. of U. S. I:19; pp 36.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [The production of each mineral is reviewed separate, as are the activities in each county of the state].—Min. Res. of U. S. I:15; pp 25.

Heikes, V. C. — *Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reports of the metals and counties' activities and productions].—Min. Res. of U. S. I:17; pp 37.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in South Dakota and Wyoming in* 1915. [The report is made by counties, each state being considered separately].—Min. Res. of U. S. I:13; pp 13.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Each state is reviewed separately by counties and by separate metals for the state as a whole].—Min. Res.. U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in Wyoming and South Dakota.* [Separate reviews of operations and production of the states are given with briefs on each county].—Min. Res. of U. S. I:13; pp 14.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Both states are reviewed separately and separate reviews of the metals produced and operations by counties are included].—Min. Res. of U. S I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper. Lead and Zinc in Colorado in* 1915. [Each metal is reviewed separately for the whole state and followed by reviews of the separate mines and mills by counties as regards their operation and production].—Min. Res. of U. S. I:16; pp 64.

Parodi, Lorenzo.—*Ricordi e Note Sulla Metallurgia Italiana.* [A record of the metallurgical production of metals in Italy during 1914 and 1915].—Metallurgia Ital. April 30 1916; p 260; pp 15; $1.

Ryan, Edward.—*Biennial Report of the State Inspector of Mines, Nevada,* 1913-1914. [An account of the metal production by counties and separate descriptions of accidents].—Report; pp 52.

Wagner, William.—*Coeur d'Alene Mining Information.* [Financial statements of the larger companies are given and production and value thereof for the smaller ones. Brief separate accounts of each company in the district are also given].—Wagner, Wallace, Ida.; book; pp 174; $4.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California in* 1915.—Min. Res. of U. S. I:10; pp 51.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California and Oregon in* 1915. [Reviews the production by counties and in general].—Min. Res. of U. S. I:10; pp 51.

——— *British Columbia Annual Report of the Minister of Mines for* 1915. [Reviews metal production in general for the province and in detail for operating companies].—Mg. Engg. & Elect. Rec. Aug. 1916; p 76; pp 3½; 35c.

——— *California Mineral Production.* —E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

——— *Metal Production of Ontario, First Half of* 1916.—Mg. World Oct. 7 1916; p 626; pp 1; 10c.

——— *New South Wales Department of Mines; Annual Report for* 1915. [A general review of mine operations and activities during the year].—N. S. W. Dept. of Mines, Sydney.

——— *Ontario's Metal Production.* [From the Canadian Bureau of Mines report].—Canadian Mg. Jnl. Dec. 1 1916; p 555; pp 1¼; 35c.

——— *Rhodesia Chamber of Mines: Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau]. —Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Rhodesia Report of the Executive Committee of the Chamber of Mines and Production of Gold and Other Minerals in May,* 1916. [The production of operating gold companies are given individually]. — Rhodesia Chamber of Mines Report May 1916; pp 6.

——— *Sullivan Mine, East Kootenay, B. C.* [A description of mine operations and production, with an account of the geology of the formation and nature and occurrence of the ore bodies].—Canadian Mg. Jnl. Sept. 15 1916; p 444; pp 2¼; 35c.

——— *United States Mint, Report of the Director for the Year of* 1916. [A report of the production of precious metals for 1915 and the Mint's operations to June 30, 1916].—Treasury Dept. Annual Report of Mint; pp 286.

PLATINUM

Bartels. Bergassessor.—*Russlands Gold, Platin, Blei, Silber und Zink Industrie im Jahre,* 1912. [Russia's gold, platinum, lead, silver and zinc industry in 1912. The review includes the production of the metals in Russia, Greater Russia and Siberia].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 217; pp 5; $1.50.

Duparc, Louis.—*El Platino.* [A paper read before the Assn. of Eng. of France,

dealing with the geology and occurrence of platinum in the Ural mountains of Russia].—Revista Minera Aug. 1 1916; p 367; pp 3¼; 35c.

Figueroa, T.; Carbonell, A.—*Notas Sobre Los Yacimientos Bismutiferos de Azuel, Cordoba, Spain.* [Notes on the nature and production of a bismuth ore in Spain].—Revista Minera Oct. 16 1916; p 491; pp 2; 35c.

Gruetter, T. W.—*Platinum on the Pacific Coast.* [On the qualities and places at which platinum is found and methods are briefly described for recovering the metal].—M. & S. P. July 1 1916; p 20; pp 1¼; 20c.

Hill, James M.—*Platinum and Allied Metals in* 1915. [Reviews production in general, by states and foreign countries. Methods of refining and extracting from other metals is spoken of briefly].—Min. Res. of U. S. I:6; pp 19.

Jiminez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150.

Lang, Herbert.—*Black Sand of the Pacific Coast.* [Tells of the mode of occurrence of these deposits which are not of large tonnages, and discusses the possibilities of more extensively working them].—M. & S. P. Dec. 2 1916; p 811; pp 2¾; 20c.

Lowell, F. L.—*Mines and Mineral Resources of Del Norte, Humboldt and Mendocino Counties, California.* [Reviews operations in detail, locates separate deposits and describes them].—Calif. Mg. Bur.; pp 59*.

Scott, W. A.—*Activity in the Goodsprings District, Nevada.* [Speaks briefly of the different mines in the district as regards their operations and production]. Mg. World Dec. 23 1916; p 1069; pp 3*; 10c.

——— *California Mineral Production.* —E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

CHAPTER III.

COPPER.

Mines and Mining

Blood, Clifford C.—*Pinos Altos District, Grant County, New Mexico.* [A description of the district, its properties and their operation].—Mg. World Oct. 14 1916; p 659; pp 2*; 10c.

Bradley, Walter W.—*Mines and Mineral Resources of Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma and Yolo Counties, California.* [Separate descriptions of mines, deposits and operations of mines and plants].—Calif. Mg. Bur.; pp 208*.

Brinsmade, Robert B.—*Two Washington Mining Districts.* [The districts are known as Metaline Falls and Bald Mountain. Zinc, lead, copper and gold are found with some silver. The various properties and their activities are spoken of briefly].—M. & S. P. Nov. 18 1916; p 743; pp 2½*; 20c.

Brooks, Alfred H.—*Gold, Silver and Copper in Alaska in* 1915. [Discusses production and conditions in general and in detail by districts].—Min. Res. U. S. I:8; pp 12.

Brown, G. Chester.—*Mines and Mineral Resources of Shasta, Siskiyou and Trinity Counties, California.* [Copper and gold are the principal minerals, though many others occur in the district].—Calif. Mg. Bur.; pp 192*.

Browne, P. W.—*Mineral Resources of Newfoundland.* [A review of the possibilities in operating the iron ore and copper deposits of the province. The past production of mines is given].—Canadian Mg. Jnl. Sept. 15 1916; p 437; pp 1¾; 35c.

Burch, H. K.—*The Inspiration Mine Plant.* [Abst. from a paper read before the A. I. M. E. Describes the equipment and methods used for handling the ore from the mine, both underground and on surface].—E. & M. J. Sept. 23 1916; p 537; pp 5¾*; 25c.

Burch, Kenyon.—*Mine and Mill Plant of the Inspiration Consolidated Copper Co., Arizona.* [A complete description of plant equipment and operations, from underground pockets to the finished concentrate].—Bull. A. I. M. E. Sept. 1916; p 1467; pp 33*; 35c.; M. & S. P. Dec. 2 1916; p 801; pp 5¾*; 20c.; E. & M. J. Sept. 9 1916; p 457; pp 3½*; 25c.

Butler, B. S.—*Copper in* 1915. [A prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Chapin, Theodore; Canfield, George H. —*Mining Developments and Water-Power Investigation in Southeastern Alaska.* [The gold and copper mines are described by districts in which they are located and reviews are made of sources of water power].—U. S. G. S. Bull. 642-B; pp 55*.

Coleman, A. P.—*Chief Minerals of the Sudbury Nickel Ores.* [The location and nature of the particular minerals found in the field].—Canadian Mg. Jnl. Aug. 15 1916; p 388; pp 1¾*; 35c.

Cooper, Lloyd D.—*Sinking the Wallenberg Shaft, Norway.* [The work was contracted for by E. J. Longyear Co. Operations and methods are described]. —E. & M. J. Nov. 4 1916; p 811; pp 3*; 25c.

De Wolf, William P.—*Reopening Old Mines in Arizona.*—Mg. World Aug. 19 1916; p 329; pp 2¼*; 10c.

De Wolf, William P.—*Yavapai County, Arizona, Mines and Mills.* [A general review of current conditions, with some detailed information].—Mg. World Sept. 16 1916; p 503; pp 1¼; 10c.

Duff, J. E.—*Northwestern Country Tributary to Spokane Is a Great Mineral Producer.* [Deals with the activities and results obtained at the various mines and plants in the area which includes British Columbia and United States].—Mg. World Nov. 18 1916; p 871; pp 3¼*; 10c.

Figueroa, T.; Carbonell, A. — *Notas Azuel, Cordoba, Spain.* [Notes on the nature and production of a bismuth ore in Spain].—Revista Minera Oct. 16 1916; *Sobre Los Yacimientos Bismutiferos de* p 491; pp 2; 35c.

Hillen, A. G.—*Mines and Mining Operations at Ely, Nevada.* [A review of operations, with specific information on power equipment being used].—Mg. World Sept. 2 1916; p 403; pp 5*; 10c.

Hurja, E. E.—*The Ketchikan District, Alaska.* [Reviews the progress and operations of the principal mines].—M. & S. P. July 29 1916; p 163; pp 3*; 20c.

Johnson, Bertrand L. — *Mining on Prince William Sound, Alaska.* [Gold, silver and copper mines and plants are reviewed separately by districts. Geology

and mineralogy are reviewed in a general way].—U. S. G. S. Bull. 642-D; pp 9.

Junghann, Dr.—*Die Kupfergrube Chuquicamata in Chile.* [The copper deposits in Chile].—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 411; pp 5*; $1.50.

Lehman, George R.—*Ore Drawing Tests and the Resulting Mining Method of the Inspiration Consolidated Copper Co., Arizona.* [Describes the caving system and the tests which lead to its adoption].—Bull. A. I. M. E. Sept. 1916; p 1501; pp 14*; 35c.

Lowell, F. L.—*Mines and Mineral Resources of Del Norte, Humboldt and Mendocino Counties, California.* [Reviews operations in detail, locates separate deposits and describes them].—Calif. Mg. Bur.; pp 59*.

Maguire, Don.—*The Copper Mines of Wolf Mountain, Cache County, Utah.* [A general and geological description of the district].—S. L. Mg. Rev. Sept. 15 1916; p 17; pp 2⅛*; 25c.

McDonald, P. B.—*Two Great Copper Mines Compared.* [Compares operations, production, etc., of the Calumet and Hecla and Nevada Con. Co.'s].—M. & S. P. Sept. 9 1915; p 391; pp 1½; 20c.

Merrill, Frederick J. H.—*Geology and Mineral Resources of San Diego and Imperial Counties.* [Though gold is the principal metal mined considerable is done in the non-metallic industry].—Calif. Mg. Bur. pp 113*.

Miller, Benjamin L.; Singewald, J. T., Jr. — *Exploitation of Chilean Mines.* [Treats on the industries from an economic and industrial standpoint].—E. & M. J. Aug. 12 1916; p 289; pp 4¼*; 25c.

Moffit, Fred H.—*Mineral Resources of the Upper Chitina Valley, Alaska.* [A district in which copper and gold have been found, but which has been prospected but little].—U. S. G. S. Bull. 642-C; pp 8*.

Moore, H. W.—*Blasting Practice at Chuquicamata, Chile.* [A system of electric blasting. Tunnels are made and loaded with powder for the blasting of large blocks of ground].—M. & S. P. July 8 1916; p 60; pp 2*; 20c.

Mudd, S. W.—*Mining and Metallurgical Progress in the Southwest.* [Address delivered before the Chamber of Mines and Oil, Los Angeles, being on the production of ores and methods].—Mg. World July 1 1916; p 11; pp 2; 10c.

Murray, R. M.—*Mining Methods at Mount Lyell, Australia.* [Abst. of a paper read before the Aust. I. of M. E. describing the method of stoping the large body].—E. & M. J. Sept. 2 1916; p 416; pp 3¼*; 25c.

Ortega, Pablo. — *Boletin De Minas, Cuba.* [Reviews the operations and production of the mines, mostly in the province of Pinar del Rio. The nature of the deposits and mines of the various companies are described. Several tables of statistics are given in the concluding pages].—Secretaria de Agricultura, Comercio y Minas, Bull. No. 1; pp 157*.

Parsons, L. A.—*Diamond Drilling at Sudbury, Ontario.* [Details of operation and costs].—E. & M. J. Aug. 26 1916; p 381; pp 1¾; 25c.

Rickard, T. A.—*The Britannia Mine and Mill, British Columbia.* [Details on the mill equipment and operation, with further information on the mine workings and deposits].—M. & S. P. Nov. 11 1916; p 693; pp 8*; 20c.

Roche, Thomas F.—*Mining and Smelting at Casapalca, Peru.* [From the West Coast Leader, describing the district and operations in general].—Mg. World Sept. 2 1916; p 409; pp 1¼; 10c.

Saint-Smith, E. C. — *Kangaroo Hill Mineral Field, North Queensland, Australia.* [Notes on several of the mines in this area].—Queen. Govt. Mg. Jnl. Nov. 15 1916; p 534; pp 5½*; 35c.

Saint-Smith, Cecil E.—*Mount Mudlo Copper Mine, Kilkivan District, Australia.* [A detailed description of the underground workings and ore formations of the area].—Queen. Govt. Mg. Jnl. Oct. 14 1916; p 480; pp 3¾*; 35c.

Saint-Smith, E. C. — *The Tinto Copper Syndicate's Mine, Montalbion Irvinebank District, Australia.* [A complete description of the mine workings].—Queen. Gov't Mg. Jnl. July 15 1916; p 316; pp 2¾*; 35c.

Sale, A. J.—*Drilling and Analysis of Copper Ores.* [A general discussion of errors made from taking averages of churn-drill hole samples. Also speaks of the sulpho-cyanide assay of copper].—E. & M. J. July 8 1916; p 87; pp 3¼; 25c.

Scott, David B.—*Stoping Methods of the Miami Copper Co., Arizona.* [On the methods of haulage and stoping used in extracting this large body. Several stoping methods are being used].—Bull. A. I. M. E. June 1916; p 1031; pp 17*; 35c.

Scott, W. A.—*Activity in the Goodsprings District, Nevada.* [Speaks briefly of the different mines in the district as regards their operations and production].—Mg. World Dec. 23 1916; p 1069; pp 3*; 10c.

Scott, W. A.—*Mining Operations at Johnston, Arizona.* [Reviews the opera-

tions of the tungsten and copper companies of the district].—Mg. World July 22 1916; p 141; pp 3*; 10c.

Scott, W. A.—*Mining Operations in Bingham Camp, Utah.* [Describes operations of the more important properties].—Mg. World Sept. 16 1916; p 491; pp 1¾; 10c.

Scott, W. A.—*Nevada Douglas Mines and Mill.* [Describes the geology, mine workings and equipment with more details on the crushing and leaching plants].—Mg. World Aug. 12 1916; p 277; pp 2*; 10c.

Scott, W. A.—*Notes on the Park City Mines and Mills, Utah.* [Describes several operating companies' operations].—Mg. World Sept. 2 1916; p 411; pp 1¾; 10c.

Scott, W. A.—*Operations of the Magma Copper Co., Superior, Arizona.* [Gives a brief detailed description of the mine, crushing and concentration].—Mg. World July 1 1916; p 9; pp 1¼*; 10c.

Scott, W. A.—*The Old Dominion Copper Co.'s Operations, Arizona.* [Haulage, mine water and concentration problems are reviewed].—Mg. World July 8 1916; p 43; pp 2¾*; 10c.

Singewald, Joseph T., Jr.; Miller, Benjamin LeRoy.—*The Morococha and Casapalca Districts, Peru.* [A general review of the mines and their activities. Copper, silver and zinc are produced].—E. & M. J. Nov. 18 1916; p 889; pp 4½*; 25c.

Tally, Robert E.—*Mine-Fire Methods Employed by the United Verde Copper Co., Arizona.* [Causes, methods of prevention, ventilation and methods of handling a stope on fire are considered].—Bull. A. I. M. E. Sept. 1916; p 1545; pp 9*; 35c.

Tallant, J. D.—*Pillar Caving at the Braden Mine.* [Peculiarities of the method and its operation in this particular ground].—Teniente Topics June 1916; p 1; pp 6*; 35c.

Thum, E. E.—*Cost Accounting in the Construction and Operation of a Copper Smelter.* [From experience at the Anaconda Copper Co.'s plant].—Met. & Chem. Engg. July 15 1916; p 96; pp 4¾; 30c.

Tucker, W. B.—*Mines and Mineral Resources of Amador, Calaveras, Tuolumne.* [Economic mineral products are reviewed by separate descriptions of deposits and mines with some information on the condition of the country].—Calif. Mg. Bur.; pp 180*.

Wilson, P. D.—*Stoping in the Calumet & Arizona Mines, Bisbee, Arizona.* [Gives detail of procedure for systems used as square-setting, top-slicing, caving systems, etc.].—Bull. A. I. M. E. July 1916; p 1099; pp 19*; 35c.; M. & S. P. Aug. 26 1916; p 315; pp 3½*; 20c.

Willis, Charles F.—*Mining in Arizona.* [A review of operations mostly at the copper mines of the district].—M. & S. P. July 29 1916; p. 157; pp 3*; 20c.

Yeatman, Pope. — *Mine of Chile Exploration Co., Chuquicamata, Chile.* [A paper read before the Pan-American Sci. Cong. The history, geology, reserves, power plant and testing of hydrometallurgical treatment of the ores are included].—Teniente Topics Aug. 1916; p 1; pp 18*; 35c.

——— *Britannia Mining and Smelting Co., Ltd., Howe Sound, B. C.* [Reprint of a company balance sheet and report closed Jan. 1 1916].—Canadian Mg. Jnl. July 1 1916; p 323; pp 3¼; 35c.

——— *Cost and Extraction in the Selection of a Mining Method.* [Discussion of a previously read paper].—A. I. M. E. Bull. Dec. 1916; p 2180; pp 1½; 35c.

——— *Hulett Unloader as Applied to the Handling of Copper Ore.* [An excavator to handle the leached sands from the tanks at the plant of the New Cornelia Copper Co., Ariz.].—Mg. World Dec. 2 1916; p 951; pp 1*; 10c.

——— *Japanese Mining Expansion.*—E. & M. J. July 15 1916; p 143; pp 1; 25c.

——— *Mine Fire Methods Employed by the United Verde Copper Co.* [Discussion of a paper by R. E. Tally; describes the methods used in the mines of the Anaconda Copper Co.].—A. I. M. E. Bull. Dec. 1916; p 2173; pp 7½; 35c.

——— *Power Plant of the Burro Mountain Copper Co., New Mexico.* [Discussion of a paper by Chas. Legrand].—A. I. M. E. Bull. Dec. 1916; p 2181; pp 2½; 35c.

——— *Ray Consolidated Copper Co., Developing the Property with an Electric Dragline Excavator.* [Describes an electrically operated dragline excavator mounted on caterpillars at Hayden, Ariz.].—Excavating Eng. Dec. 1916; p 95; pp 3½*; 20c.

——— *The Mount Morgan Mine and Works, Australia.* [Complete description of the geology, mining and concentrating plant of this mine once a gold mine but now copper].—Mg. & Engg. Rev. July 5 1916; p 244; pp 9*; 35c.

Milling, Smelting, Refining, Leaching, Etc.

Addicks, Lawrence.—*Possibilities in the*

Wet Treatment of Copper Concentrates. [The method tested and described consists of roasting and then leaching].—Bull. A. I. M. E. Sept. 1916; p 1565; pp 9*; 35c.

Addicks, Lawrence.—*An Analysis of Tank Resistance in Electrolytic Refining.* [A general discussion of the subject with particular reference to resistance].—Met. & Chem. Engg. Nov. 15 1916; p 566; pp 5*; 35c.

Addicks, Lawrence.—*Possibilities in the Wet Treatment of Copper Concentrates.* [A paper read before the A. I. M. E. Curves are reproduced and the results of tests in roasting, leaching and chloridizing are dealt with].—Met. & Chem. Engg. Dec. 1 1916; p 628; pp 3*; 35c.

Addicks, Lawrence.—*The Wet Treatment of Copper Concentrates.* [A paper read before the A. I. M. E. The ore is roasted and leached with sulphuric acid].—M. & S. P. Oct. 28 1916; p 630; pp 2¾*; 20c.

Antisell, F. L.; Skowronski, S.—*Electrolytic Refining of Copper.* [Describes the electrolytic refining and method of melting the cathode copper].—Amer. Inst. of Metals Adv. Copy 20; pp 11*; 35c.; E. & M. J. Nov. 11 1916; p 874; pp 2¼; 25c.

Ball, Lionel C.—*Mount Cannindah Copper Mine, Australia.* [The history by years, geology, concentrating and smelting methods are taken up in detail with production figures].—Queen. Gov't Mg. Jnl. July 15 1916; p 318· pp 6*; 35c.

Blickenderfer, F. C.—*A Comparative Test of the Marathon, Chilean and Hardinge Mills.* [Tests made at the Detroit Copper Co.'s plant, Morenci, Ariz.].—Bull. A. I. M. E. Aug. 1916; p 1333; pp 16*; 35c.

Bradley, Walter W.—*Mines and Mineral Resources of Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma and Yolo Counties, California.* [Separate descriptions of mines, deposits and operations of mines and plants].—Calif. Mg. Bur.; pp 208*.

Bregman, A.—*Operating a Small Copper Blast Furnace.* [Details of furnace operation and construction which cause trouble in a small plant and methods used for getting around the same].—E. & M. J. July 22 1916; p 171; pp 4*; 25c.

Clayton, C. Y.—*Experiments from the Flotation Laboratory.* [Considerable of the text has to do with the nature of different oils. Description of laboratory flotation machines and tests made on different ores are also given].—Mo. School of Mines Bull. Aug. 1916; pp 40*.

Clyne, C. B.—*The Stoddard Mill—A Copper Concentrator.* [Description of a 100-ton concentrator operating successfully].—M. & S. P. Oct. 21 1916; p 598; pp 2½*; 20c.

Cole, David.—*Grinding Mills at the Inspiration.* [Discussion of a paper read before the A. I. M. E. in which comparison of two types of ball-mills was made].—M. & S. P. Dec. 9 1916; p 831; pp 1¾; 20c.

Cole, David.—*The Advent of Flotation in the Clifton Morenci District, Arizona.* [Describes methods used in the district leading to the use of flotation machines]—Bull. A. I. M. E. Sept. 1916; p 1611; pp 16*; 35c

Deshler, George O.—*Ohio Copper Concentrator, Utah.* [A description of the flow of the ores and the slime plant and method for water recovery].—E. & M. J. Nov. 11, 1916; p 855; pp 1*; 25c.

Flynn, F. N.—*Smelting at the Arizona Copper Co.'s Works, Arizona.* [On the details of operation and equipment].—Bull. A. I. M. E. Sept. 1916; p 1575; pp 18; 35c.

Gaebelein, P. W.—*Cyaniding Copper-Bearing Ores.* [On operations at the Baker Mines Co., Cornucopia, Ore.].—E. & M. J. July 25 1916; p 22; pp 1¼*; 25c.

Gahl, Rudolf.—*History of the Flotation Process at Inspiration, Arizona.* [Describes tests made and methods adopted with, the results obtained in each. The paper is complete and gives details].—Bull. A. I. M. E. Sept. 1916; p 1627; pp 54*; 35c.; Met. & Chem. Engg. Oct. 1 1916; p 393; pp 12½*; 35c.

Gahl, Rudolph.—*Operations and Methods in Use at the Inspiration Property, Arizona.* [A flow sheet of the mill with considerable statistical data on the distribution of power, milling and flotation work].—Mg. World Nov. 11 1916; p 825; pp 3*; 10c.

Gayford, Ernest.—*Flotation at the Calaveras Copper Mine, California.* [Correspondence regarding a comparison of the National mill, Idaho, and the Calaveras mill, Calif.].—M. & S. P. Dec. 16 1916; p 868; pp ¾; 20c.

Hanchett, F. B.—*Daily Sampling in Square-Set Mining, Arizona.* [A method used in the Clifton-Morenci district, whereby the metal content of a set can be told before it is mined out].—Mg. World Dec. 2 1916; p 949; pp 1¾*; 10c.

Hawley, F. O.—*Determination of Copper in Low Grade Ores.* [An electrolytic method for rapid determination].—E. & M. J. Aug. 12 1916; p 307; pp 2; 25c.

Heath, George L.—*The Analysis of*

Copper and Its Ores and Alloys. [Methods of analysis and assay for different products containing copper].—McGraw-Hill; book; pp 292*; $3.

Howard, L. O.—*Copper Metallurgy at Garfield, Utah.* [Describes crushing, concentration, flotation and smelting as regards equipment and operations].—M. & S. P. July 8 1916; p 54; pp 3½; 20c.

Howard, L. O.—*The Basic-Lined Converter in the Southwest.* [A general review, with details].—Bull. A. I. M. E. Sept. 1916; p 1539; pp 5; 35c.

Laist, Frederick.—*Changes in Smelting Practice of Anaconda Copper Co.* [A review of recent progress in methods and equipment made at this smelter].—E. & M. J. Oct. 7 1916; p 635; pp 3*; 25c.

Laist, Frederick; Wiggi, A. E.—*Flotation Concentration at Anaconda.* [Parts of a paper read before the A. I. M. E.]. —M. & S. P. Dec. 9 1916; p 847; pp 2; 20c.

Lamb, Mark R.—*Copper Smelting at Naltagua in Central Chile.* [High prices of coke is causing a replacement of blast furnaces by reverberatory furnaces].—E. & M. J. Oct. 28 1916; p 777; pp 3½*; 25c.

Magnus, B.—*Blast vs. Reverberatory Furnace.* [The advantages of the blast over the reverberatory furnace, as noted at Mount Morgan, Australia].—E. & M. J. Oct. 7 1916; p 668; pp 1½; 25c.

McGregor, A. G.—*Features of the New Copper Smelting Plants in Arizona.* [Treats on the transportation and sampling of the ores as well as actual furnace practice].—Bull. A. I. M. E. Aug. 1916; p 1257*; 35c.

Morse, H. W.; Tobelmann, H. A.—*Leaching Tests at New Cornelia, Arizona.* [Different methods and the results of tests are dealt with].—Bull. A. I. M. E. Sept. 1916; p 1593; pp 18*; 35c.

Mudd, S. W.—*Mining and Metallurgical Progress in the Southwest.* [Address delivered before the Chamber of Mines and Oil, Los Angeles, being on the production of ores and methods].—Mg. World July 1 1916; p 11; pp 2; 10c.

Parodi, Lorenzo.—*Notizie Sulla Metallurgia del Nickel Importanza del Nickel nell'odierna Metallurgia.* [Notes on the metallurgy of nickel today. Deals with the situation and methods employed in the principal producing countries].—Metallurgia Ital. May 31 1916; p 355; pp 14; $1.

Ralston, O. C.; Allen, Glen L.—*The Flotation of Oxidized Ores.* [Discusses problems encountered in flotating different kinds of oxide ores. The results of some tests are given].—Mg. World July 22 1916; p 137; pp 3¼; 10c.

Rickard, T. A.—*Electrolytic Refining at Trail, British Columbia.* [The five more common metals are produced here and the nuisance of sulphur fumes is entirely absent].—M. & S. P. Dec. 23 1916; p 903; pp 5*; 20c.

Rickard, T. A.—*The Britannia Mine and Mill, British Columbia.* [Details on the mill equipment and operation, with further information on the mine workings and deposits].—M. & S. P. Nov. 11 1916; p 693; pp 8*; 20c.

Robins, Hallet R.—*Flotation at the Calaveras Copper—A Simple Flow-Sheet.* [Costs, transportation and the ore body are described, besides the flotation system. No table concentration is employed at all].—M. & S. P. Nov. 25 1916; p 769; pp 5*; 20c.

Roche, Thomas F.—*Mining and Smelting at Casapalca, Peru.* [From the West Coast Leader, describing the district and operations in general].—Mg. World Sept. 2 1916; p 409; pp 1¼; 10c.

Rose, C. A.—*Metallurgical Operations at the Chile Exploration Co.* [A paper read before the Pan-American Sci. Cong. The ores are leached as sulphates and electrolytically precipitated]. — Teniente Topics Aug. 1916; p 19; pp 5*; 35c.

Samuel, J. Moore.—*Determination of Dust Losses at the Copper Queen Reduction Works.* Methods of testing and formulas used in computation are given].—Bull. A. I. M. E. June 1916; p 1079; pp 20*; 35c.

Scott, W. A.—*Plant Construction of the New Cornelia Copper Co., Arizona.* [Electric power is used and the ores are refined by electrolysis and leaching].—Mg. World July 15 1916; p 89; pp 3½*; 10c.

Scott, W. A.—*The Old Dominion Copper Co.'s Operations, Arizona.* [Haulage, mine water and concentration problems are reviewed].—Mg. World July 8 1916; p 43; pp 2¾*; 10c.

Shellshear, W.—*Flotation at the Mt. Morgan Mine, Queensland, Australia.* [A paper read before the Aust. Inst. of Mg. Eng. Operations are described though tests are given more consideration].—Mg. World Oct. 28 1916; p 741; pp 3; Dec. 2 1916; p 947; pp 1½; 20c.

Stander, H. J.—*Alaska Has One Up-to-Date Flotation Plant—the Kennecott.* [A description of the plant and the results which have been obtained].—Mg. World Nov. 11 1916; p 822; pp 1¼; 10c.

Vail, Richard H.—*Tuyere Connections*

for Copper and Lead Blast Furnaces. [Detail drawings and descriptions for different constructions are given].—E. & M. J. Oct. 7 1916; p 639; pp 4¼*; 25c.

Wright, W. H.—*Flotation Experiments, Department of Research and Testing, Colorado School of Mines.* [Tables and curves showing the results of tests made on a lead-zinc-gold-silver-copper ore with many different oils].—Colo. School of Mines Qt'ly April 1916; p 1; pp 25*; 35c.

Zies, E. G.; Allen, E. T.; Merwin, H. E. —*Some Reactions Involved in Secondary Copper Sulphide Enrichment.* [Full details regarding laboratory and field investigations].—Economic Geol. Aug. 1916; p 407; pp 97*; 60c.

——— *Britannia Mining and Smelting Co., Ltd., Howe Sound, B. C.* [Reprint of a company balance sheet and report closed Jan. 1 1916].—Canadian Mg. Jnl. July 1 1916; p 323; pp 3¼; 35c.

——— *Copper Leaching, New Development in.*—Mg. World Oct. 21 1916; p 706; pp 1; 10c.

——— *Copper Smelting and Refining in Australia.* [On the economic aspects of the subject].—Mg. Jnl. July 29 1916; p 522; pp 1¼; 35c.

——— *Field's Flotation Machines in Arizona.* [On the use of these machines at the plant of the Keystone, Con. Co.].—Mg. World Nov. 18 1916; p 806; pp ¾; 10c.

——— *Flotation at Mount Morgan, Australia.* [Abst. from the proceedings of the Aust. Inst. of Mg. Eng. Experimental work and the method as finally adopted].—E. & M. J. Oct. 21 1916; p 755; pp 2; 25c.

——— *Leaching Tests at New Cornelia Plant, Arizona.* [Discussion by members of a previous paper]. A. I. M. E. Bull. Dec. 1916; p 2151; pp 8; 35c.

——— *Mount Morgan Mine and Works, Australia.* [Describes the sintering and converting plant equipment and operations. Also the electric power plant using turbines].—Mg. & Engg. Rev. Aug. 5 1916; p 278; pp 6¾*; 35c.

——— *Notes on Copper Smelting at the United Verde Copper Co., Arizona.* [Describes operations and equipment].—Met. & Chem. Engg. Sept. 1 1916; p 251; pp 2*; 35c.

——— *Some Notes on Lead Smelting in Tooele, Utah.* [A description of the International Smelting Co.'s plant].—E. & M. J. Dec. 23 1916; p 1100; pp 1; 25c.

——— *The Mount Morgan Mine and Works, Australia.* [Complete description of the geology, mining and concentrating plant of this mine once a gold mine but now copper].—Mg. & Engg. Rev. July 5 1916; p 244; pp 9*; 35c.

——— *Winona Copper-Leaching Test Plant.* [The Slater process is used. A 5-ton plant using hydrometallurgy and electrometallurgy is described and operating costs given].—E. & M. J. Nov. 25 1916; p 929; pp 1½; 25c.

Geology

Ball, Lionel C.—*Mount Cannindah Copper Mine, Australia.* [The history by years, geology, concentrating and smelting methods are taken up in detail with production figures].—Queen. Gov't Mg. Jnl. July 15 1916; p 318; pp 6*; 35c.

Bonillas, Y. S.; Tenney, J. B.; Feuchère, L.—*Geology of the Warren Mining District, Arizona.* [A complete review of the geology, mineralogy and nature of the ore deposits of the district].—Bull. A. I. M. E. Sept. 1916; p 1397; pp 69*; 35c.

Brooks, Alfred H.—*Mineral Resources of Alaska.* [Descriptions of mines and deposits reviewing their production, geology and geography. The coal mining lease laws are also spoken of].—U. S. G. S. Bull. 642; pp 279*.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

De Kalb, Courtenay.—*Surficial Indications of Copper.* [Discussion on a paper of the same title by Frank H. Probert].—M. & S. P. July 22 1916; p 115; pp 1¼; 20c.

Maguire, Don.—*The Copper Mines of Wolf Mountain, Cache County, Utah.* [A general and geological description of the district].—S. L. Mg. Rev. Sept. 15 1916; p 17; pp 2⅓*; 25c.

Merrill, Frederick J. H.—*Geology and Mineral Resources of San Diego and Imperial Counties.* [Though gold is the principal metal mined considerable is done in the non-metallic industry].—Calif. Mg. Bur. pp 113*.

Paige, Sidney.—*Silver City, New Mexico, Folio.* [Large separate maps of the quadrangle, with a geologic description of the formation and ore deposits].—U. S. G. S. Folio No. 199; pp 19*.

Probert, Frank H.—*Surficial Indications of Copper.* [Information on the physical and chemical properties of outcrops indicating copper deposits].—M. & S. P. July 15 1916; p 81; pp 7*; Aug. 19 1916; p 267; pp 9*; 40c.

Provot, F. A.—*Geology of the Jerome Mining District, Arizona.* [Abstract of "Geological Reconnaissance of Jerome District"].—E. & M. J. Dec. 9 1916; p 1028; pp 3¼*; 25c.

Reber, Louis E., Jr.—*The Mineralization at Clifton-Morenci District, Arizona.* [Details on the geology of the formation, genesis and mineralogy of the deposits].—Eco. Geol. Sept. 1916; p 528; pp 36*; 60c.

Reid, J. H.—*Sundown Tin and Copper Mine, Ballandean, Queensland, Australia.* [On the geology of the deposit, working of the mine and concentrating of the ores].—Queen. Govt. Mg. Jnl. June 15 1916; p 260; pp 1¾*; 35c.

Reid, J. H.—*The Comet Mine, Sundown, Ballandean, Queensland, Australia.* [A geological description of the ore deposits and ore].—Queen. Govt. Mg. Jnl. June 15 1916; p 258; pp 2*; 35c.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Rogers, Austin F.—*Origin of Copper Ores of the "Red Beds" Type.* [The ores considered are mostly from New Mexico, and conclusions have been drawn from a petrographic study of the rocks].—Eco. Geol. June 1916; p 366; pp 15*; 60c.

Spurr, J. H.—*The Relation of Ore-Deposition to Faulting.* [Sights various observations of this form of genesis of ore as noted in the field].—Eco. Geol. Nov. 1916; p 601; pp 22; 60c.

Vail, Richard H.—*Pinar Del Rio Copper Region, Cuba.* [Describes the deposits, their development to date and future possibilities. One good mine has already been opened].—E. & M. J. Nov. 25 1916; p 950; pp 2½; 25c.

Wagner, P. A.—*Economic Geology and Mineral Industry of Southwest Africa.*—S. Afr. Mg. Jnl. July 1 1916; p 311; pp 1; 35c.

Wallace, R. C.; DeLury, J. S.—*The Mineral Belt North of the Pas, Northwestern Manitoba and Eastern Sasckatchewan.* [Abstract of a report of the Manitoba Public Utilities Commission].—Canadian Mg. Inst. Bull. Oct. 1916; p 884; pp 6½; 35c.

Way, Herbert, W. L.—*The Minerals of Sze-Chuan, China.* [Brief descriptions of the deposits, their possibilities and operation. Salts have been mined, petroleum is plentiful and gold, silver and copper give promise].—Mg. Mag. July 1916; p 20; pp 4*; 50c.

Yeatman, Pope.—*Mine of Chile Exploration Co., Chuquicamata, Chile.* [A paper read before the Pan-American Sci. Cong. The history, geology, reserves, power plant and testing of hydrometallurgical treatment of the ores are included].—Teniente Topics Aug. 1916; p 1; pp 18*; 35c.

Young, S. W.; Moore, Neil, Preston.—*Laboratory Studies on Secondary Sulphide Ore Enrichment.* [Confined to copper sulphides and the generation of hydrogen sulphide].—Eco. Geol. June 1916; p 349; pp 17; Sept. 1916; p 574; pp 8*; $1.20.

——— *Geology of the Warren Mining District, Arizona.* [Discussion of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2164; pp 4; 35c.

——— *Origin of the Sudbury Nickel-Copper Ores.*—Canadian Mg. Jnl. Aug. 15 1916; p 390; pp 1*; 35c.

Miscellaneous

Broniewski, M. Witold.—*Sur la Scructure des Alliages Cuivre-Zinc et Cuivre-Etain.* [A metallographic study on copper-zinc and copper-tin alloys].—Metallurgie French Nov. 1915; p 961; pp 29*; 50c.

Caesar, G. V.; Gerner, G. C.—*The Annealing Properties of Copper at Temperatures below 500 degrees, with Particular Reference to the Effect of Oxygen and of Silver.*—A. I. of Metals Adv. Paper No. 6; pp 43*; 35c.

Campbell, William.—*Recent Progress in Metallography.* [With some description the greater part is a bibliography of literature].—Amer. Inst. of Metals Adv. Copy 17; pp 63; 35c.

Corse, W. M.; Comstock, G. F.—*Some Copper-Aluminum-Iron Alloys.* [Deals with the physical properties and nature of the alloy. A metallographic review of the alloys and the results of physical tests are given].—American Inst. of Metals Adv. Paper 14; pp 16*; 35c.

Fulton, Charles H.—*The Buying and Selling of Ores and Metallurgical Products.* [Methods of sampling and the different ways in which ores are settled for and penalized are explained].—U. S. Bur. of Mines Tech. Paper 83; pp 42; 15c.

Gaby, W. E.—*Petrography of the Mount Morgan Mine, Queensland, Australia.*—Bull. A. I. M. E. Sept. 1916; p 1725; pp 20*; 35c.

Guess, G. A.; Lathe, F. E.—*An Investigation Into the Flowing Temperatures of*

Copper Mattes and of Copper-Nickel Mattes. [A number of tests and investigations to determine the temperature at which the two mattes will flow].—Bull. A. I. M. E. June 1916; p 1067; pp 6*; 35c.

Heidelberg, Fred M.—*A Portable Water Sampler.* [A device used for sampling underground waters at the Copper Queen].—E. & M. J. Aug. 19 1916; p 343; pp 1¼*; 25c.

Hodd, B. B.—*Proper Current Densities.* [Curves are given from which the proper current density for both steel and copper transmission lines may be found together with some costs related thereto].—Met. & Chem. Engg. Nov. 15 1916; p 571; pp 2¼*; 35c.

Hoyt, Samuel L.—*Notes on the Copper-Rich Kalchoids.* [Speaks of the different copper-tin-zinc alloys].—Trans. American Inst. of Metals Vol. IX; p 83; pp 14*; 35c.

Hoyt, S. L.—*The Ternary Alloys of Copper, Tin and Zinc—the Kalchoids.* [A review of the properties].—Trans. American Inst. of Metals Vol. IX; p 364; pp 31*; 35c.

Legrand, Charles.—*Power Plant of the Burro Mountain Copper Co., New Mexico.* [Electric power generated by direct connection to Diesel engines is used].—Bull. A. I. M. E. Sept. 1916; p 1531; pp 8*; 35c.

Mathewson, C. H.; Thalheimer, E. M.—*Comparisons Between Electrolytic and Two Varieties of Arsenical Lake Copper with Respect to Strength and Ductility in Cold-Worked and Annealed Test Strips.* [The results are tabulated and the nature of each test is described].—Bull. A. I. M. E. July 1916; p 1185; pp 40*; 35c.

Matley, H. A.—*Canadian Metal Trades and Preparedness.* [Deals with the production and market prices of lead and copper in Canada. Separate reviews of provinces are given].—Canadian Mg. Inst. Bull. Sept. 1916; p 783; pp 7; 50c.

McBride, D.—*A Trip Through Honduras, C. A.* [Deals mainly with the people, means of travel and accommodations, with more brief notes on copper and gold found in the country].—E. & M. J. Nov. 11 1916; p 851; pp 3½*; 25c.

McFarland, David F.; Harder, Oscar E.—*The Alloys of Chromium, Copper and Nickel.* [Treats on the composition, properties, etc., of different mixtures making this alloy].—Trans. American Inst. of Metals Vol. IX; p 119; pp 26*; 35c.

Parr, S. W.; McFarland, D. F.—*The Analysis of Complex Alloys of Chromium, Copper, Nickel Type.*—Trans. American Inst. of Metals Vol. IX; p 218; pp 6; 35c.

Rawdon, Henry S.—*Note on the Occurrence and Significance of Twinned Crystals in Electrolytic Copper.*—A. I. of Metals Adv. Paper No. 13; pp 12*; 35c.; Met. & Chem. Engg. Oct. 1 1916; p 406; pp 3*; 35c.

Rickard, T. A.—*J. Parke Channing and Copper Mining.* [A bibliography of Channing's life with respect to the mining industry, principally iron and copper, in this country].—M. & S. P. Sept. 30 1916; p 487; pp 12*; 20c.

Rogers, Austin F. — *The So-Called Graphic Intergrowth of Bornite and Chalcocite.* [Studies made with the microscope].—Eco. Geol. Sept. 1916; p 582; pp 12*; 60c.

Sisley, George E.—$137,849,595 *in Dividends by Mines and Works in Half Year.*—Mg. World Aug. 5 1916; p 223; pp 5¾*; 10c.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* [Gives the results of tests made on steels containing small amounts of other metals, as copper, tin, silicon, phosphorus, sulphur, etc.].—Iron & Steel Inst. Adv. Copy; pp 91*; 50c.; I & C. Tr. Rev. Sept. 22 1916; p 350; pp 2⅓*; 35c.

Stead, J. E.—*Notes on Nickel Steel Scale and on the Reduction of Solid Nickel and Copper Oxides by Solid Iron.* [Gives the method of procedure and results obtained in experimental work].—Iron & Steel Inst. Adv. Copy 7A; pp 9*; 50c.

Thompson, M. De Kay; Thompson, N. J.—*The Electrolytic Oxidation of Sulphurous Acid.* [Speaks of this phenomena with respect to the electrolytic recovery of copper direct from its ores].—Met. & Chem. Engg. Dec. 15 1916; p 677; pp 2*; 35c.

Wilson, A. W. G.—*On the Possibility of Producing Refined Copper in Canada.* [Published by permission of the Mines Branch, Ottawa, Ont. The deposits, reserves and refining of copper in Canada are discussed].—Canadian Mg. Jnl. Nov. 15 1916; p 529; pp 6½; 35c.

——— *Braden Copper Co.'s Hydroelectric Installation in* 1909. [Translated from Estadistica Minera de Chile].—Teniente Topics June 1916; p 7; pp 4*; 35c.

Production

Brooks, Alfred H.—*Gold, Silver and Copper in Alaska in* 1915. [Discusses production and conditions in general and

in detail by districts].—Min. Res. U. S. I:8; pp 12.

Brooks, Alfred H.—*Mineral Resources of Alaska.* [Descriptions of mines and deposits reviewing their production, geology and geography. The coal mining lease laws are also spoken of].—U. S. G. S. Bull. 642; pp 279*.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Butler, B. S.—*Copper in* 1915. [A prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Dunlop, J. P.—*Secondary Metals in* 1915. [On the production of metals refined from scrap].—Min. Res. U. S. I:3; pp 8.

Dunlop, J. P.; Butler, B. S.—*Silver, Copper, Lead and Zinc in the Central States in* 1915. [Separate reviews of the area, districts, states and companies].—Min. Res. of U. S. I:5; pp 93.

Figueroa, T.; Carbonell, A.—*Notas Azuel, Cordoba, Spain.* [Notes on the nature and production of a bismuth ore in Spain].—Revista Minera Oct. 16 1916; *Sobre Los Yacimientos Bismutiferos de* p 491; pp 2; 35c.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. of U. S. I:15; pp 35.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reviews of the metals and activities in each of the counties in the state].—Min. Res. of U. S. I:17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Montana in* 1915. [Separate reports of each metal and briefs on the metals collectively for each county).—Min. Res. of U. S. I:19; pp 36.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [The production of each mineral is reviewed separate, as are the activities in each county of the state].—Min. Res. of U. S. I:15; pp 25.

Heikes, C. V.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reports of the metals and counties' activities and productions].—Min. Res. of U. S. I:17; pp 37.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in South Dakota and Wyoming in* 1915. [The report is made by counties, each state being considered separately].—Min. Res. of U. S. I:13; pp 13.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. Each state is reviewed separately by counties and by separate metals for the state as a whole].—Min. Res. U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in Wyoming and South Dakota.* [Separate reviews of operations and production of the states are given with briefs on each county].—Min. Res. of U. S. I:13; pp 14.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Both states are reviewed separately and separate reviews of the metals produced and operations by counties are included].—Min. Res. of U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in Colorado in* 1915. [Each metal is reviewed separately for the whole state and followed by reviews of the separate mines and mills by counties as regards their operation and production].—Min. Res. of U. S. I:16; pp 64.

Hill, James M.—*Platinum and Allied Metals in* 1915. [Reviews production in general, by states and foreign countries. Methods of refining and extracting from other metals is spoken of briefly].—Min. Res. of U. S. I:6; pp 19.

Jimenez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150*.

Johnson, Bertrand L. — *Mining on Prince William Sound, Alaska.* [Gold, silver and copper mines and plants are reviewed separately by districts. Geology and mineralogy are reviewed in a general way].—U. S. G. S. Bull. 642-D; pp 9.

Ortega, Pablo. — *Boletin De Minas, Cuba.* [Reviews the operations and production of the mines, mostly in the province of Pinar del Rio. The nature of the deposits and mines of the various companies are described. Several tables of statistics are given in the concluding pages].—Secretaria de Agricultura, Comercio y Minas, Bull. No. 1; pp 157*.

Ryan, Edward.—*Biennial Report of the State Inspector of Mines, Nevada,* 1913-1914. [An account of the metal produc-

tion by counties and separate descriptions of accidents].—Report; pp 52.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California in* 1915.—Min. Res. of U. S. I:10; pp 51.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California and Oregon in* 1915. [Reviews the production by counties and in general].—Min. Res. of U. S. I:10; pp 51.

——— *British Columbia Annual Report of the Minister of Mines for* 1915. [Reviews metal production in general for the province and in detail for operating companies].—Mg. Engg. & Elect. Rec. Aug. 1916; p 76; pp 3½; 35c.

——— *British Columbia Report of the Minister of Mines.* [On the production and mineral industry of the province].—Mg. & Eng. Rec. Oct. 1916; p 92; pp 1½; 35c.

——— *Butte & Superior's Operations for the Second Quarter.*—Mg. World Sept. 9 1916; p 457; pp 1¼*; 10c.

——— *California Mineral Production.*—E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

——— *Metal Production of Ontario, First Half of* 1916.—Mg. World Oct. 7 1916; p 626; pp 1; 10c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *New South Wales Department of Mines: Annual Report for* 1915. [A general review of mine operations and activities during the year].—N. S. W. Dept. of Mines, Sydney.

——— *New South Wales in* 1915. [Reviews the production of metals in the country].—Mg. Jnl. Sept. 2 1916; p 596; pp 2; 35c.

——— *Ontario's Metal Production.* [From the Canadian Bureau of Mines report].—Canadian Mg. Jnl. Dec. 1 1916; p 555; pp 1¼; 35c.

——— *Pretoria Inspectorate of Mines* 1915 *Annual Report.*—S. Afr. Mg. Jnl. Oct. 7 1916; p 122; pp 1; 35c.

——— *Quebec Mining Industry—A Review for the First Half of* 1916. [Brief accounts of operations at various properties].—Canadian Mg. Inst. Bull. Sept. 1916; p 796; pp 4; 50c.

——— *Rhodesia Chamber of Mines Report of the Executive Committee.* [Tables of details on the production of gold and asbestos properties in the district are given].—Rhodesia Chamber of Mines Report Aug. 1916; pp 6*.

———. *Rhodesia Report of the Executive Committee of the Chamber of Mines and Production of Gold and Other Minerals in May* 1916. [The production of operating gold companies is given individually]. — Rhodesia Chamber of Mines Report May 1916; pp 6.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

CHAPTER IV.

Lead, Zinc and Cadmium.

LEAD

Mines and Mining

Ball, Sydney H.—*The Lead Mines of Washington County, Missouri.* [A brief description of the geology of the deposits and operations and methods of working the deposits].—M. & S. P. Dec. 2 1916; p 807; pp 3¼*; 20c.

Bartels, Bergassessor.—*Russlands Gold, Platin, Blei, Silber und Zink Industrie im Jahre* 1912. [Russia's gold, platinum, lead, silver and zinc industry in 1912. The review includes the production of the metals in Russia, Greater Russia and Siberia].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 217; pp 5; $1.50.

Bell, Robert N.—*Mining Industry of Idaho for* 1915. [A general review of the industry in the state and separate reviews of the advance and doings of different mines].—Annual Report of Inspector of Mines, 1915; pp 134*.

Brinsmade, Robert B.—*Two Washington Mining Districts.* [The districts are known as Metaline Falls and Bald Mountain. Zinc, lead, copper and gold are found with some silver. The various properties and their activities are spoken of briefly].—M. & S. P. Nov. 18 1916; p 743; pp 2½*; 20c.

De Wolf, William P.—*Yavapai County, Arizona, Mines and Mills.* [A general review of current conditions, with some detailed information].—Mg. World Sept. 16 1916; p 503; pp 1¼; 10c.

Duff, J. E.—*Northwestern Country Tributary to Spokane Is a Great Mineral Producer.* [Deals with the activities and results obtained at the various mines and plants in the area which includes British Columbia and United States].—Mg. World Nov. 18 1916; p 871; pp 3¼*; 10c.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. of U. S. 1:15; pp 35.

Higgins, W. C.—*Operations at the South Hecla Mine at Alta, Utah.*—S. L. Mg. Rev. Aug. 15 1916; p 15; pp 2⅛*; 25c.

Hillen, A. G.—*Review of Conditions in the Eureka Mining District, Nevada.* [A general review of operations and conditions both past and present].—Mg. World Sept. 30 1916; p 571; pp 4*; 10c.

Hodgkinson, H. H.—*Mining Ore from Pillars.* [A method used by the New Jersey Zinc Co. It is a combination where top-slicing is begun at the bottom of the body and raised from level to level by shrinkage stoping].—E. & M. J. July 29 1916; p 217; pp 2½*; 25c.

Lakes, Arthur. — *The Electric-Point Mine in Washington.* [A vivid description of the mine workings and geology of the ore and allied formation, with some notes as to the genesis of the ores].—Mg. World Dec. 9 1916; p 991; pp 1¾*; 10c.

Larson, A. G.; Lakes, Arthur, Jr.—*Slocan Star Mine, British Columbia.* [Abstract of a report made by the authors on this mine, in which details regarding it are given].—Mg. & Engg. Rec. Oct. 1916; p 96; pp 4¼*; 35c.

Lewis, J. H.—*Zinc and Lead Districts of Wisconsin.* [On the mining and smelter operations and production during the first half of 1916].—Mg. World Aug. 5 1916; p 243; pp 4*; 10c.

Lyon, Burt W.—*Half-Year in the Joplin Lead Zinc District, Missouri.* [Reviews prices, production and operations].—Mg. World Aug. 5 1916; p 239; pp 3*; 10c.

Palmer, L. A.—*The Yellow Pine District, Nev.* [Describes the district, its geology and nature of the ore deposits found there. The system of mining and milling are then reviewed and some details given].—E. & M. J. July 15 1916; p 123; pp 3*; 25c.

Root, W. A.—*Aspen, Over the Range in Pitkin County, Colorado.* [The history of the camp and several of the companies operating in it are included in the description].—Mg. World Dec. 2 1916; p 943; pp 2¾*; 10c.

Scott, W. A.—*Activity in the Goodsprings District, Nevada.* [Speaks briefly of the different mines in the district as regards their operations and production].—Mg. World Dec. 23 1916; p 1069; pp 3*; 10c.

Scott, W. A.—*El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Scott, W. A.—*Mining and Milling at Robinson, Colorado.* [Describes the mines and plant of the Progress Co. Flotation is used in the mill].—Mg. World Nov. 18 1916; p 865; pp 1¼*; 10c.

Scott, W. A.—*Notes on the Park City Mines and Mills, Utah.* [Describes several operating companies' operations].—Mg. World Sept. 2 1916; p 411; pp 1¾; 10c.

Scott, W. A.—*Operations of Silver King Coalition Mines Co., Park City, Utah.* [A general description of operations and equipment, including pumping and hoisting].—Mg. World Sept. 9 1916; p 447; pp 3*; 10c.

Scott, W. A.—*Operations in the Tintic District, Utah.* [Describes the district and its operations in general, and then gives separate descriptions of the operations and methods of some of the companies].—Mg. World Sept. 30 1916; p 583; pp 1¾; 10c.

Speed, F. B., Jr.—*Lead-Zinc Mining in Virginia.* [A review of operations].—E. & M. M. Sept. 16 1916; p 511; pp ¾; 25c.

Wittich, L. L.—*Mining and Milling in Arkansas.* [Abst. from the News Herald. Describes the geology, operations and methods].—M. & S. P. Sept. 9 1916; p 385; pp 1½*; 20c.

——— *Sullivan Mine, East Kootenay, B. C.* [A description of mine operations and production, with an account of the geology of the formation and nature and occurrence of the ore bodies].—Canadian Mg. Jnl. Sept. 15 1916; p 444; pp 2¼; 35c.

Ore Dressing, Metallurgy, Chemistry, Etc.

Clayton, C. Y.—*Experiments from the Flotation Laboratory.* [Considerable of the text has to do with the nature of different oils. Description of laboratory flotation machines and tests made on different ores are also given].—Mo. School of Mines Bull. Aug. 1916; pp 40*.

Dunning, C. H.—*The Big Pine Cyanide Mill, Arizona.* [An 80-ton mill making 90% extraction at $1.37 per ton. Lead, silver and gold, with no copper or zinc, makes up the ore].—E. & M. J. Dec. 16 1916; p 1043; pp 1¾*; 25c.

Dwight, Arthur S. — *Lead-Smelting Practice in the United States.* [Advancements have been chiefly in changing the charge to the furnace].—E. & M. J. Oct. 7 1916; p 671; pp 6¾*; 25c.

Edmands, H. R.—*Some Notes on the Effect of Lead Salts and of Varying Degree of Alkalinity on the Solvent Power of Cyanide Solution for Gold.* [The results of tests are tabulated and described].—Jnl. Chamber of Mines West Aust. April 29 1916; p 63; pp 8; 75c.

Handy, R. S.—*Bunker Hill & Sullivan Milling Data.* [Flow sheets and drawings with brief description of operations and detailed cost sheet are dealt with].—E. & M. J. July 1 1916; p 35; pp 2¼*; 25c.

Higgins, Will C.—*New Milling Plant of Big Four Exploration at Park City, Utah.*—S. L. Mg. Rev. Aug. 30 1916; p 13; pp 3*; 25c.

Johnson, J. E., Jr.—*Blast Furnace Irregularities and Their Treatment.*]Treats on the troubles of the water supply to the water jackets[.—Met. & Chem.-Engg. Aug. 1 1916; p 127; pp 3½; 35c.

Lewis, J. H.—*Zinc and Lead Districts of Wisconsin.* [On the mining and smelter operations and production during the first half of 1916].—Mg. World Aug. 5 1916; p 243; pp 4*; 10c.

Lindau, S. Paul.—*Matte Granulation at Herculaneum, Mo.* [Method used by the St. Joseph Lead Co., Mo.].—Bull. A. I. M. E. Nov. 1916; p 2057; pp 5*; 35c.

Lomas, Garcia.—*Jucio Critico Sobre la Aplicacion del Moderno Horno Escoces a Nuestros Minerales de Plomo.* [On the application of the modern Scotch furnace and Spanish lead ores].—Revista Minera Aug. 24 1916; p 401; pp 2; 35c.

Palmer, Leroy A.—*Some Zinc-Lead Mills of California and Nevada.* [Descriptions of some mills and a review of the general practice].—Met. & Chem. Engg. Aug. 15 1916; p 203; pp 2*· 35c.

Palmer, L. A.—*The Yellow Pine District, Nev.* [Describes the district, its geology and nature of the ore deposits found there. The system of mining and milling are then reviewed and some details given].—E. & M. J. July 15 1916; p 123; pp 3*; 25c.

Parodi, Lorenzo.—*Ricordi e Note Sulla Metallurgia Italiana.* [A record of the metallurgical production of metals in Italy during 1914 and 1915].—Metallurgia Ital. April 30 1916; p 260; pp 15; $1.

Rain, Allan D.—*The Separation of Galena from Blende by the Horwood Process of Flotation.* [Abst. from Teniente Topics].—M. & S. P. Oct. 7 1916; p 529; pp 1½; 20c.

Ralston, O. C.; Allen, Glen L.—*The Flotation of Oxidized Ores.* [Discusses problems encountered in flotating different kinds of oxide ores. The results of some tests are given].—Mg. World July 22 1916; p 137; pp 3¼; 10c.

Rickard, T. A.—*Electrolytic Refining at Trail, British Columbia.* [The five more common metals are produced here and the nuisance of sulphur fumes is entirely absent].—M. & S. P. Dec. 23 1916; p 903; pp 5*; 20c.

Scott, W. A.—*Concentrating Mill Tailings Near Park City, Utah.* [Concentration and haulage are dealt with. To get rid of zinc considerable of the lead and silver was lost formerly].—Mg. World Aug. 26 1916; p 359; pp 2½*; 10c.

Scott, W. A.—*El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Scott, W. A.—*Mining and Milling at Robinson, Colorado.* [Describes the mines and plant of the Progress Co. Flotation is used in the mill].—Mg. World Nov. 18 1916; p 865; pp 1¼*; 10c.

Scott, W. A.—*Notes on the Park City Mines and Mills, Utah.* [Describes several operating companies' operations].—Mg. World Sept. 2 1916; p 411; pp 1¾; 10c.

Scott, W. A.—*Operations of Silver King Coalition Mines Co., Park City, Utah.* [A general description of operations and equipment, including pumping and hoisting].—Mg. World Sept. 9 1916; p 447; pp 3*; 10c.

Scott, W. A.—*Operations in the Tintic District, Utah.* [Describes the district and its operations in general, and then gives separate descriptions of the operations and methods of some of the companies].—Mg. World Sept. 30 1916; p 583; pp 1¾; 10c.

Scott, W. A.—*Sulphidizing Carbonate Tailings for Treatment by Oil Flotation.* [While being agitated the crushed ore as carbonate is changed to a metallic sulphide by the addition of sodium sulphide].—Mg. World Dec. 2 1916; p 946; pp 1; 10c.

Sherwood, C. F.—*New Flotation Plant of the Prince Consolidated Co., Nevada.*—S. L. Mg. Rev. Aug. 30 1916; p 17; pp 1*; 25c.

Sims, Clarence E.; Ralston, O. C.—*The Electrolytic Recovery of Lead from Brine Leaches.* [The results of experimental work and operations with this method of procedure are given].—Amer. Electrochem. Soc. Adv. Copy 11; p 185; pp 15; 35c.; Met. & Chem. Engg. Oct. 1 1916; p 410; pp 4*; 35c.

Tournay-Hinde, A. W.—*The Flow of Air in Lead Blast Furnaces.* [A paper read before the Engg. Assn. of New South Wales. Reviews investigations made along this line in Australia].—Mg. & Engg. Rev. June 5 1916; p 229; pp 1¾; 35c.; E. & M. J. Aug. 26 1916; p 392; pp 1; 25c.

Vail, Richard H.—*Tuyere Connections for Copper and Lead Blast Furnaces.* [Detail drawings and descriptions for different constructions are given].—E. & M. J. Oct. 7 1916; p 639; pp 4¼*; 25c.

Waddell, J.—*The Volumetric Determination of Lead.*—Analyst No. 16 1916; p 270; pp 3; 35c.

Whitaker, W. A.; Belchic, George; Neal, Roy; Van Velzer, H. L.—*Flotation Experiments on a Joplin Tailing.* [The results from using a number of different oils are tabulated and discussed. Testing was done with 400-gm. samples].—Met. & Chem. Engg. Aug. 1 1916; p 131; pp 7; 35c.

Wittich, L. L.—*Mining and Milling in Arkansas.* [Abst. from the News Herald. Describes the geology, operations and methods].—M. & S. P. Sept. 9 1916; p 385; pp 1½*; 20c.

Wright, Clarence A.—*Jig Concentration in the Joplin District, Missouri.* [Abst. from the Joplin Globe].—M. & S. P. Sept. 2 1916; p 357; pp 1½*; 20c.

Wright, W. H.—*Flotation Experiments, Department of Research and Testing, Colorado School of Mines.* [Tables and curves showing the results of tests made on a lead-zinc-gold-silver-copper ore with many different oils].—Colo. School of Mines Qt'ly April 1916; p 1; pp 25*; 35c.

——— *Concentration and Flotation of Lead Ores in Southeast Missouri.* [Editorial correspondence].—Met. & Chem. Engg. July 15 1916; p 93; pp 3; 30c.

——— *French Electrolytic Process.*—Mg. World Sept. 9 1916; p 450; pp ¾; 10c.

——— *Some Notes on Lead Smelting in Tooele, Utah.* [A description of the International Smelting Co.'s plant].—E. & M. J. Dec. 23 1916; p 1100; pp 1; 25c.

——— *Treating Zinc-Lead Tailings in Utah.* [Flotation is used for this work].—Mg. World Sept. 2 1916; p 408; pp ¾*; 10c.

——— *United States Metals Refining Co.'s Plant, Grasselli, Indiana.* [A description of the steam and electric power plants at the electrolytic lead refinery].—Pract. Eng. Aug. 1 1916; p 641; pp 4½*; 20c.

Geology

Ball, Sydney H.—*The Lead Mines of Washington County, Missouri.* [A brief

description of the geology of the deposits and operations and methods of working the deposits].—M. & S. P. Dec. 2 1916; p 807; pp 3¼*; 20c.

Ball, Sydney H.; Thompson, L. S.—*The Southwest Virginia Lead-Zinc Deposits.* [The authors argue that the deposits were made by waters of magnetic origin].—E. & M. J. Oct. 21 1916; p 735; pp 2¾*; 25c.

Bancroft, J. Austen.—*Mining Operations in Quebec During* 1915. [A separate report on the geology of the zinc-lead deposits in Portneuf county is included].—Quebec Dept. of Mines; Report; pp 146*.

Butler, B. S.; Loughlin, G. F.—*A reconnaissance of the Cottonwood-American Fork Mining Region, Utah.* [Notes on the history and production are given, with a detailed description of the formation and operations].—U. S. G. S. Bull. 620-I; pp 62*.

Higgins, W. C.—*Operations at the South Hecla Mine at Alta, Utah.*—S. L. Mg. Rev. Aug. 15 1916; p 15; pp 2⅓*; 25c.

Hillen, A. G.—*Review of Conditions in the Eureka Mining District, Nevada.* [A general review of operations and conditions both past and present].—Mg. World Sept. 30 1916; p 571; pp 4*; 10c.

Lakes, Arthur. — *The Electric-Point Mine in Washington.* [A vivid description of the mine workings and geology of the ore and allied formation, with some notes as to the genesis of the ores].—Mg. World Dec. 9 1916; p 991; pp 1¾*; 10c.

Lee, Wallace.—*Geology of the Kentucky Part of the Shawneetown Quadrangle.* [The economic deposits are composed of coal, oil, lead, zinc and clay].—Kentucky Geol. Surv.; pp 73.

Loveman, M. H.—*The Geology of the Bawdwin Mines, Burma, Asia.* [Complete, detailed description of these lead-zinc sulphide deposits which have been worked since ancient times is given].—A. I. M. E. Bull. Dec. 1916; p 2119; pp 25*; 35c.

Moore, E. S.—*Observations on the Geology of the Broken Hill Lode, New South Wales.* [A complete geologic description of the formation, ore deposits and nature of the ore, citing instances at particular mines].—Eco. Geol. June 1916; p 327; pp 22*; 60c.

Paige, Sidney.—*Silver City, New Mexico, Folio.* [Large separate maps of the quadrangle, with a geologic description of the formation and ore deposits].—U. S. G. S. Folio No. 199; pp 19*.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Spurr, J. E.—*The Relation of Ore-Deposition to Faulting.* [Sights various observations of this form of genesis of ore as noted in the field].—Eco. Geol. Nov. 1916; p 601; pp 22; 60c.

Uglow, W. L.—*Lead and Zinc Deposits in Ontario and Eastern Canada.* [Separate descriptions of deposits are given and these are classified according to the geologic nature of the deposit].—Annual Report Ont. Bur. of Mines Vol. XXV, Part II; pp 56*.

Miscellaneous

Edmands, H. R.—*Some Notes on the Effect of Lead Salts and of Varying Degree of Alkalinity on the Solvent Power of Cyanide Solution for Gold.* [Gives the results of some tests made].—Monthly Jnl. Chamber of Mines West Aust. June 30 1916; p 108; pp 4½; 35c.

Ford, W. E.; Bradley, W. M.—*Margarosanite, a New Lead-Calcium Silicate from Franklin, N. J.*—American Jnl. of Sci. Aug. 1916; p 159; pp 3½*; 60c.

Fulton, Charles H.—*The Buying and Selling of Ores and Metallurgical Products.* [Methods of sampling and the different ways in which ores are settled for and penalized are explained].—U. S. Bur. of Mines Tech. Paper 83; pp 42; 15c.

Ichikawa, Shimmatsu.—*Some Notes on Japanese Minerals.* [Treats on the peculiar nature of some mineral crystals found in Japan].—American Jnl. of Sci. Aug. 1916; p 111; pp 9*; 60c.

Matley, H. A.—*Canadian Metal Trades and Preparedness.* [Deals with the production and market prices of lead and copper in Canada. Separate reviews of provinces are given].—Canadian Mg. Inst. Bull. Sept. 1916; p 783; pp 7; 50c.

McDonnell, C. C.—*The Preparation and Properties of Lead Chloro Arsenate or Artificial Mimetite.*—American Jnl of Sci. Aug. 1916; p 139; pp 7*; 60c.

Rickard, T. A.—*The Blue Bell Mine, Riondel, B. C.* [The history and transaction which have taken part in the operating of this old silver-lead-zinc property are told in detail].—M. & S. P Nov. 25 1916; p 765; pp 2½*; 20c.

Shellshear, W.—*Selling Lead and Zinc Concentrates.* [Notes on the valuation of the ores and some metallurgical problems affiliated therewith].—Mg. & Engg. Rev. May 5 1916; p 190; pp 3¾*; 35c.

Sisley, George E.—$137,849,595 *in Dividends by Mines and Works in Half Year.* —Mg. World Aug. 5 1916; p 223; pp 5¾*; 10c.

Stone, G. S.—*Spelter: Its Grades and Uses.* [Tells of impurities, the amounts allowable in different grades and their effect on spelter's properties].—Mg. World Aug. 12 1916; p 287; pp 1½; 10c.

Thompson, G. W.—*Why Highly Oxidized Red Lead Is Superior.*—Mg. World Sept. 2 1916; p 415; pp 2¼; 10c.

Wagner, William.—*Coeur d'Alene Mining Information.* [Financial statements of the larger companies are given and production and value thereof for the smaller ones. Brief separate accounts of each company in the district are also given].—Wagner, Wallace, Ida.; book; pp 174; $4.

———. *Pacific Coast Steel Co.'s Plants.* [The plants described are located at both Seattle, Wash., and San Francisco, Cal.].—Iron Age July 27 1916; p 175; pp 4½*; 30c.

Production

Bartels, Bergassessor.—*Russlands Gold, Platin, Blei. Silber und Zink Industrie im Jahre,* 1912. [Russia's gold, platinum, lead, silver and zinc industry in 1912. The review includes the production of the metals in Russia, Greater Russia and Siberia].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 217; pp 5; $1.50.

Bell, Robert N.—*Mining Industry of Idaho for* 1915. [A general review of the industry in the state and separate reviews of the advance and doings of different mines].—Annual Report of Inspector of Mines, 1915; pp 134*.

Butler, B. S.—*Copper in* 1915. [A prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Butler, B. S.; Loughlin, G. F.—*A reconnaissance of the Cottonwood-American Fork Mining Region, Utah.* [Notes on the history and production are given, with a detailed description of the formation and operations].—U. S. G. S. Bull. 620-I; pp 62*.

Dunlop, J. P.—*Secondary Metals in* 1915. [On the production of metals refined from scrap].—Min. Res. U. S. I:3; pp 8.

Dunlop, J. P.; Butler, B. S.—*Silver, Copper, Lead and Zinc in the Central States in* 1915. [Separate reviews of the area, districts, states and companies].—Min. Res. of U. S. I:5; pp 93.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. of U. S. I:15; pp 35.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reviews of the metals and activities in each of the counties in the state].—Min. Res. of U. S. I:17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Montana in* 1915. [Separate reports of each metal and briefs on the metals collectively for each county].—Min. Res. of U. S. I:19; pp 36.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [The production of each mineral is reviewed separate, as are the activities in each county of the state].—Min. Res. of U. S. I:15; pp 25.

Heikes, C. V.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reports of the metals and counties' activities and productions].—Min. Res. of U. S. I:17; pp 37.

Henderson, Charles W.—*New Mexico Metal Production in* 1915. [Abst. from a U. S. G. S. report. Zinc lead and copper are considered].—Mg. & Oil Bull. Sept. 1916; p 227; pp 3*; 25c.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in South Dakota and Wyoming in* 1915. [The report is made by counties, each state being considered separately].—Min. Res. of U. S. I:13; pp 13.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Each state is reviewed separately by counties and by separate metals for the state as a whole].—Min. Res. U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in Wyoming and South Dakota.* [Separate reviews of operations and production of the states are given with briefs on each county].—Min. Res. of U. S. I:13; pp 14.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in Colorado in* 1915. [Each metal is reviewed separately for the whole state and followed by reviews of the separate mines and mills by counties as regards their operation and production].—Min. Res. of U. S. I:16; pp 64.

Henderson, Charles W.—*Gold, Silver,*

Copper, Lead and Zinc in New Mexico and Texas in 1915. Each state is reviewed separately by counties and by separate metals for the state as a whole].—Min. Res. U. S. I:14; pp 27.

Jimenez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150*.

Lyon, Burt W.—*Half-Year in the Joplin Lead Zinc District, Missouri.* [Reviews prices, production and operations].—Mg. World Aug. 5 1916; p 239; pp 3*; 10c.

Parodi, Lorenzo.—*Ricordi e Note Sulla Metallurgia Italiana.* [A record of the metallurgical production of metals in Italy during 1914 and 1915].—Metallurgia Ital. April 30 1916; p 260; pp 15; $1.

Ryan, Edward.—*Biennial Report of the State Inspector of Mines, Nevada,* 1913-1914. [An account of the metal production by counties and separate descriptions of accidents].—Report; pp 52.

Siebenthal, C. E.—*Lead in* 1915. [On the production and market conditions in United States and briefs on several foreign countries].—Min. Res. U. S. I:9; pp 19.

Sisley, George E.—$137,849,595 *in Dividends by Mines and Works in Half Year.*—Mg. World Aug. 5 1916; p 223; pp 5¾*; 10c.

Verne, C. E.—*Zinc's Record Breaking Year.* [A review of the first part of 1916 in the Joplin district].—Zinc & Lead Jnl. June 1916; p 3; pp 2*; 20c.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California in* 1915.—Min. Res. of U. S. I:10; pp 51.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California and Oregon in* 1915. [Reviews the production by counties and in general].—Min. Res. of U. S. I:10; pp 51.

——— *British Columbia Annual Report of the Minister of Mines for* 1915. [Reviews metal production in general for the province and in detail for operating companies].—Mg. Engg. & Elect. Rec. Aug. 1916; p 76; pp 3½; 35c.

——— *British Columbia Report of the Minister of Mines.* [On the production and mineral industry of the province].—Mg. & Engg. Rec. Oct. 1916; p 92; pp 1½; 35c.

——— *California Mineral Production.*—E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *New South Wales Department of Mines: Annual Report for* 1915. [A general review of mine operations and activities during the year].—N. S. W. Dept. of Mines, Sydney.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

——— *Sullivan Mine, East Kootenay, B. C.* [A description of mine operations and production, with an account of the geology of the formation and nature and occurrence of the ore bodies].—Canadian Mg. Jnl. Sept. 15 1916; p 444; pp 2¼; 35c.

ZINC

Mines and Mining

Bell, Robert N.—*Mining Industry of Idaho for* 1915. [A general review of the industry in the state and separate reviews of the advances and doings of different mines].—Annual Report of Inspector of Mines 1915; pp 134*.

Brinsmade, Robert B.—*Two Washington Mining Districts.* [The districts are known as Metaline Falls and Bald Mountain. Zinc, lead, copper and gold are found with some silver. The various properties and their activities are spoken of briefly].—M. & S. P. Nov. 18 1916; p 743; pp 2½*; 20c.

De Wolf, William P.—*Yavapai County, Arizona, Mines and Mills.* [A general review of current conditions, with some detailed information].—Mg. World Sept. 16 1916; p 503; pp 1¼; 10c.

Duff, J. E.—*Northwestern Country Tributary to Spokane Is a Great Mineral Producer.* [Deals with the activities and results obtained at the various mines and plants in the area which includes British Columbia and United States].—Mg World Nov. 18 1916; p 871; pp 3¼*; 10c.

Hand, J. H.—*Arkansas Mining Industry Grows.*—Zinc & Lead Jnl. June 1916; p 7; pp 2; 20c.

Higgins, W. C.—*Operations at the South Hecla Mine at Alta, Utah.*—S. L. Mg. Rev. Aug. 15 1916; p 15; pp 2⅓*; 25c.

Hodgkinson, H. H.—*Mining Ore from Pillars.* [A method used by the New Jersey Zinc Co. It is a combination where top-slicing is begun at the bottom of the body and raised from level to level by shrinkage stoping].—E. & M. J. July 29 1916; p 217; pp 2½*; 25c.

Larson, A. G.; Lakes, Arthur, Jr.—*Slocan Star Mine, British Columbia.* [Abstract of a report made by the authors on this mine, in which details regarding it are given].—Mg. & Engg. Rec. Oct. 1916; p 96; pp 4¼*; 35c.

Lewis, J. H.—*Zinc and Lead Districts of Wisconsin.* [On the mining and smelter operations and production during the first half of 1916].—Mg. World Aug. 5 1916; p 243; pp 4*; 10c.

Lyon, Burt W.—*Half-Year in the Joplin Lead-Zinc District, Missouri.* [Reviews prices, production and operations].—Mg. World Aug. 5 1916; p 239; pp 3*; 10c.

Miller, Benjamin L.; Singewald, Joseph T., Jr.—*The Huayni-Potosi Bismuth-Tin Mines in Bolivia.* [Other minerals occur, though these are the principal ones. Mining, milling and operations and conditions in the district in general are reviewed].—E. & M. J. Dec. 16 1916; p 1065; pp 3*; 25c.

Morgan, Harry J.; Ralston, Oliver C.—*Electrolytic Zinc-Dust.* [A paper read before the American Electrochem. Soc. on the electrolytical deposition of zinc from solution which would serve the cyanide process].—M. & S. P. Nov. 25 1916; p 779; pp 2; 20c.

Mudd, S. W.—*Mining and Metallurgical Progress in the Southwest.* [Address delivered before the Chamber of Mines and Oil, Los Angeles, being on the production of ores and metals].—Mg. World July 1 1916; p 11; pp 2; 10c.

Newland, David H.—*The New Zinc Mining District Near Edwards, N. Y.* [General remarks on zinc in Precambrian rocks].—Eco. Geol. Nov. 1916; p 623; pp 22*; 60c.

Orr, Charles T.—*Progress in Our Zinc Mines.* [Deals with progress in the mines of the Missouri-Kansas-Oklahoma district].—Zinc & Lead Jnl. June 1916; p 16; pp 2*; 20c.

Palmer, L. A.—*The Yellow Pine District, Nev.* [Describes the district, its geology and nature of the ore deposits found there. The systems of mining and milling are then reviewed and some details given].—E. & M. J. July 15 1916; p 123; pp 3*; 25c.

Rickard, T. A.—*The Blue Bell Mine, Riondel, B. C.* [The history and transaction which have taken part in the operating of this old silver-lead-zinc property are told in detail].—M. & S. P. Nov. 25 1916; p 765; pp 2½*; 20c.

Scott, W. A.—*Activity in the Goodsprings District, Nevada.* [Speaks briefly of the different mines in the district as regards their operations and production]. Mg. World Dec. 23 1916; p 1069; pp 3*; 10c.

Scott, W. A.—*El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Scott, W. A.—*Notes on the Park City Mines and Mills, Utah.* [Describes several operating companies' operations].—Mg. World Sept. 2 1916; p 411; pp 1¾; 10c.

Scott, W. A.—*Operations of the Magma Copper Co., Superior, Arizona.* [Gives a brief detailed description of the mine, crushing and concentration].—Mg. World July 1 1916; p 9; pp 1¼*; 10c.

Shiras, Thomas.—*Great Activity in the Northern Arkansas Zinc Fields.* [A review of activities during the first half of 1916].—Mg. World July 29 1916; p 179; pp 30*; 10c.

Singewald, Joseph T., Jr.; Miller, Benjamin LeRoy.—*The Morococha and Casapalca Districts, Peru.* [A general review of the mines and their activities. Copper, silver and zinc are produced].—E. & M. J. Nov. 18 1916; p 889; pp 4½*; 25c.

Speed, F. B., Jr.—*Lead-Zinc Mining in Virginia.* [A review of operations].—E. & M. J. Sept. 16 1916; p 511; pp ¾; 25c.

Uglow, W. L.—*Lead and Zinc Deposits in Ontario and Eastern Canada.* [Separate descriptions of deposits are given and these are classified according to the geologic nature of the deposit].—Annual Report Ont. Bur. of Mines Vol. XXV, Part II; pp 56*.

Wallace, R. C.; DeLury, J. S.—*The Mineral Belt North of the Pas, Northwestern Manitoba and Eastern Saskatchewan.* [Abst. of a report of the Manitoba Public Utilities Commission].—Canadian Mg. Inst. Bull. Oct. 1916; p 884; pp 6½; 35c.

Wittich, L. L.—*Exploitation of Arkansas Zinc.* [Speaks of the nature of the deposits, the treating of sludge, ore and recent mill construction].—E. & M. J. Aug. 12 1916; p 295; pp 2½*; 25c.

Wittich, L. L.—*Mining and Milling in Arkansas.* [Abst. from the News Herald. Describes the geology, operations and methods].—M. & S. P. Sept. 9 1916; p 385; pp 1½*; 20c.

——— *Japanese Mining Expansion.*—E. & M. J. July 15 1916; p 143; pp 1; 25c.

——— *Quebec Mining Industry—A Review of the First Half of* 1916. [Brief accounts of operations at various prop-

erties].—Canadian Mg. Inst. Bull. Sept. 1916; p 796; pp 4; 50c.

——— *Sullivan Mine, East Kootenay, B. C.* [A description of mine operations and production, with an account of the geology of the formation and nature and occurrence of the ore bodies].—Canadian Mg. Jnl. Sept. 15 1916; p 444; pp 2¼; 35c.

——— *Triplex Pumps in the Wisconsin Zinc Mines.*—Mg. World Nov. 11 1916; p 829; pp 1*; 10c.

——— *Zinc Mines in Tonkin, French Indo-China.* [Taken from a report of the Department of Commerce. A general review of the industry and conditions in the country today are given].—E. & M. J. Nov. 18 1916; p 900; pp 2¼; 25c.

Ore Dressing, Metallurgy, Chemistry, Etc.

Bocking, F. W.—*Van Buren Smelting Plant, Arkansas.* [A description of the plant and its operations, with illustrations and drawings].—E. & M. J. Oct. 7 1916; p 655; pp 7¾*; 25c.

Bretherton, S. E.—*Electrolytic Practice.* [Correspondence speaking of previous penalizing for zinc in some ores and the doing away of this through the introduction of the electrolytic process developed by the Anaconda Co.].—M. & S. P. Dec. 2 1916; p 793; pp 2; 20c.

Clayton, C. Y.—*Experiments from the Flotation Laboratory.* [Considerable of the text has to do with the nature of different oils. Description of laboratory flotation machines and tests made on different ores are also given].—Mo. School of Mines Bull. Aug. 1916; pp 40*.

De Lummen, Maurice V. M.—*The Roasting of Blendes.* [From an article in the Chem. Trade Jnl. & Chem. Eng., London].—E. & M. J. Oct. 21 1916; p 741; pp 1¾; 25c.

Engle, Robert H.—*The Engle Furnace for Redistilling Spelter.* [The operation and construction of the furnace is described].—E. & M. J. July 29 1916; p 213; pp 1¾*; 25c.

Heath, R. Franklin.—*Outlines for the Determination of Zinc.* [Gives the details of procedure for several volumetric, gravimetric and electrolytic methods for the determination of zinc].—Mg. World Dec. 16 1916; p 1027; pp 1¾; 10c.

Higgins, Will C.—*New Milling Plant of Big Four Exploration at Park City, Utah.*—S. L. Mg. Rev. Aug. 30 1916; p 13; pp 3*; 25c.

Higgins, W. C. — *Operations at the South Hecla Mine at Alta, Utah.*—S. L. Mg. Rev. Aug. 15 1916; p 15; pp 2⅓*; 25c.

Ingalls, W. R.—*Comments and Speculations on the Metallurgy of Zinc.* [A general talk on methods used and the progress being made].—E. & M. J. Oct. 7 1916; p 621; pp 3¾*; 25c.

Ingalls, W. R.—*The Donora Zinc Works, Pennsylvania.* [A description of the plant, its equipment and operation].—E. & M. J. Oct. 7 1916; p 648; pp 7*; 25c.

Lewis, J. H.—*Zinc and Lead Districts of Wisconsin.* [On the mining and smelter operations and production during the first half of 1916].—Mg. World Aug. 5 1916; p 243; pp 4*; 10c.

Lindau, S. Paul.—*Matte Granulation at Herculaneum, Mo.* [Method used by the St. Joseph Lead Co., Mo.].—Bull. A. I. M. E. Nov. 1916; p 2057; pp 5*; 35c.

Morgan, Harry J.; Ralston, O. C.—*Electrolytic Zinc Dust.* [A paper read before the American Electrochemical Soc.].—Met. & Chem. Engg. Oct. 15 1916; p 779; pp 2; 20c.; Met. & Chem. Engg. Oct. 15 1916; p 465; pp 3¼; 35c.

Mudd, S. W.—*Mining and Metallurgical Progress in the Southwest.* [Address delivered before the Chamber of Mines and Oil, Los Angeles, being on the production of ores and metals].—Mg. World July 1 1916; p 11; pp 2; 10c.

Palmer, Leroy A.—*Some Zinc-Lead Mills of California and Nevada.* [Descriptions of some mills and a review of the general practice].—Met. & Chem. Engg. Aug. 15 1916; p 203; pp 2*; 35c.

Parmelee, H. C.—*Recent Developments in Zinc Concentration Practice in the Joplin District, Missouri.* [Details of results on the jigging and table methods now used. The possibilities of flotation are also reviewed].—Met. & Chem. Engg. Sept. 15 1916; p 319; pp 2¾; 35c.

Parodi, Lorenzo.—*Ricordi e Note Sulla Metallurgia Italiana.* [A record of the metallurgical production of metals in Italy during 1914 and 1915] [—Metallurgia Ital. April 30 1916; p 260; pp 15; $1.

Power, Danvers F.—*Precipitation of Gold and Silver on Zinc Dust.* [A talk on the use of different forms of zinc for precipitation].—Mg. & Engg. Rev. Oct. 5 1916; p 10; pp 1½; 35c.

Rain, Allan D.—*The Separation of Galena from Blende by the Horwood Process of Flotation.* [Abst. from Teniente Topics].—M. & S. P. Oct. 7 1916; p 529; pp 1½; 20c.

Ralston, O. C.; Allen, Glen L.—*The Flotation of Oxidized Ores.* [Discusses problems encountered in floating different

kinds of oxide ores. The results of some tests are given].—Mg. World July 22 1916; p 137; pp 3¼; 10c.

Rickard, T. A.—*Electrolytic Refining at Trail, British Columbia.* [The five more common metals are produced here and the nuisance of sulphur fumes is entirely absent].—M. & S. P. Dec. 23 1916; p 903; pp 5*; 20c.

Scott, W. A.—*Concentrating Mill Tailings near Park City, Utah.* [Concentration and haulage are dealt with. To get rid of zinc considerable of the lead and silver was lost formerly].—Mg. World Aug. 26 1916; p 359; pp 2½*; 10c.

Scott, W. A.—*El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Scott, W. A.—*Notes on the Park City Mines and Mills, Utah.* [Describes several operating companies' operations].—Mg. World Sept. 2 1916; p 411; pp 1¾; 10c.

Scott, W. A.—*Operations of the Magma Copper Co., Superior, Arizona.* [Gives a brief detailed description of the mine, crushing and concentration].—Mg. World July 1 1916; p 9; pp 1¼*; 10c.

Sherwood, C. F.—*New Flotation Plant of the Prince Consolidated Co., Nevada.*—S. L. Mg. Rev. Aug. 30 1916; p 17; pp 1*; 25c.

Walker, Edward.—*Zinc Smelting in Vertical Retorts.* [Abst. from the Mining Magazine, describing operations and showing sectional views].—M. & S. P. Sept. 9 1916; p 387; pp 1¾*; 20c.

Whitaker, W. A.; Belchic, George; Neal, Roy; Van Velzer, H. L.—*Flotation Experiments on a Joplin Tailing.* [The results from using a number of different oils are tabulated and discussed. Testing was done with 400-gm. samples].—Met. & Chem. Engg. Aug. 1 1916; p 131; pp 7; 35c.

Wittich, L. L.—*Mining and Milling in Arkansas.* [Abst. from the News Herald. Describes the geology, operations and methods].—M. & S. P. Sept. 9 1916; p 385; pp 1½*; 20c.

Wright, Clarence A.—*Jig Concentration in the Joplin District, Missouri.* [Abst. from the Joplin Globe].—M. & S. P. Sept. 2 1916; p 357; pp 1½*; 20c.

——— *French Electrolytic Process.*—Mg. World Sept. 9 1916; p 450; pp ¾; 10c.

——— *La Calcinacion de las Blendas.* [On the roasting and calcination of zinc blende ores].—Revista Minera July 8 1916; p 329; pp 1½; July 16; p 341; pp 2½; 70c.

——— *The Bisulphite Process.* [Zinc sulphide is roasted to an oxide; changed to a bisulphite with sulphurous acid and leached from the foreign material].—E. & M. J. Nov. 18 1916; p 895; pp 3½*; 25c.

——— *The Peugeot Process of Zinc Electrolysis.* [A complete but concise description of the method is given].—S. L. Mg. Rev. July 30 1916; p 17; pp 2¾; 25c.

——— *Treating Zinc-Lead Tailings in Utah.* [Flotation is used for this work].—Mg. World Sept. 2 1916; p 408; pp ¾*; 10c.

Geology

Ball, Sydney H.; Thompson, L. S.—*The Southwest Virginia Lead-Zinc Deposits.* [The authors argue that the deposits were made by water of magmatic origin].—E. & M. J. Oct. 21 1916; p 735; pp 2¾*; 25c.

Bancroft, J. Austen.—*Mining Operations in Quebec During* 1915. [A separate report on the geology of the zinc-lead deposits in Portneuf county is included].—Quebec Dept. of Mines; Report; pp 146*.

Jessup, Douglas W.—*The Lakeview Mine, Utah.* [On the geology of the deposits, methods of operation and other general description].—E. & M. J. Sept. 30 1916; p 573; pp 3¾*; 25c.

Lee, Wallace.—*Geology of the Kentucky Part of the Shawneetown Quadrangle.* [The economic deposits are composed of coal, oil, lead, zinc and clay].—Kentucky Geol. Surv.; pp 73.

Loveman, M. H.—*The Geology of the Bawdin Mines, Burma, Asia.* [Complete, detailed description of these lead-zinc sulphide deposits which have been worked since ancient times is given.—A. I. M. E. Dec. 1916; p 2119; pp 25; 35c.

Moore, E. S.—*Observations on the Geology of the Broken Hill Lode, New South Wales.* [A complete geologic description of the formation, ore deposits and nature of the ore, citing instances at particular mines].—Eco. Geol. June 1916; p 327; pp 22*; 60c.

Paige, Sidney.—*Silver City, New Mexico, Folio.* [Large separate maps of the quadrangle, with a geologic description of the formation and ore deposits].—U. S. G. S. Folio No. 199; pp 19*.

Phillips, A. H.—*New Zinc Phosphates from Salmo, British Columbia.* [Mineralogic treatise on the minerals].—American Jnl. of Sci. Sept. 1916; p 275; pp 4*; 60c.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Spurr, J. E.—*The Relation of Ore-Deposition to Faulting.* [Sights various observations of this form ot genesis of ore as noted in the field].—Eco. Geol. Nov. 1916; p 601; pp 22; 60c.

Miscellaneous

Broniewski, M. Witold.—*Sur la Scructure des Alliages Cuivre-Zinc at Cuivre-Etain.* [A metallographic study on copper-zinc and copper-tin alloys].—Metallurgie French Nov. 1915; p 961; pp 29*; 50c.

Campbell, William.—*Recent Progress in Metallography.* [With some description the greater part is a bibliography of literature].—Amer. Inst. of Metals Adv. Copy 17; pp 63; 35c.

Fulton, Charles H.—*The Buying and Selling of Ores and Metallurgical Products.* [Methods of sampling and the different ways in which ores are settled for and penalized are explained].—U. S. Bur. of Mines. Tech. Paper 83; pp 42; 15c.

Gilbert, J.—*Costs and Profits of an Up-to-Date Spelter Works.* [A practical consideration of the subject and operations connected therewith].—Mg. Jnl. July 15 1916; p 496; pp 1¾; 35c.

Hoyt, Samuel L.—*Notes on the Copper-Rich Kalchoids.* [Speaks of the different copper-tin-zinc alloys].—Trans. American Inst. of Metals Vol. IX; p 83; pp 14*; 35c.

Hoyt, S. L.—*The Ternary Alloys of Copper, Tin and Zinc—the Kalchoids.* [A review of the properties].—Trans. American Inst. of Metals Vol. IX; p 364; pp 31*; 35c.

Karr, C. P.—*Report on a Series of Comparative Tests of Zinc-Bronze* (88 *Cu*-10 *Sn*-2 *Zn*) *Standard Test Bars.* [Deals entirely with physical tests and the results obtained].—American Inst. of Metals Adv. Paper 16; pp 12; 35c.

Rawdon, Henry S.—*Standard Test Specimen of Zinc-Bronze.* [Relations of mechanical properties to microstructure are taken up in detail].—Trans. American Inst. of Metals Vol. IX; p 60; pp 22*; 35c.

Rigg, Gilbert; Morse, Henry E.—*The Effects of the Common Impurities in Spelter Upon Slush Castings.* [Detailed information and discussion]. — Trans. American Inst. of Metals Vol. IX; p 26; pp 35*; 35c.

Ruhl, Otto.—*The Future of the American Zinc Industry.*—Mg. Cong. Jul. Oct. 1916; p 183; pp 10; 35c.

Shellshear, W.—*Selling Lead and Zinc Concentrates.* [Notes on the valuation of the ores and some metallurgical problems affiliated therewith].—Mg. & Engg. Rev. May 5 1916; 190; pp 3¾*; 35c.

Sisley, George E.—$137,849,095 *in Dividends by Mines and Works in Half Year.* —Mg. World Aug. 5 1916; p 223; pp 5¾*; 10c.

Stone, G. S.—*Spelter: Its Grades and Uses.* [Tells of impurities, the amounts allowable in different grades and their effect on spelter's properties].—Mg. World Aug. 12 1916; p 287; pp 1½; 10c.

Wagner, William.—*Coeur d'Alene Mining Information.* [Financial statements of the larger companies are given and production and value thereof for the smaller ones. Brief separate accounts of each company in the district are also given].—Wagner, Wallace, Ida.; book; pp 174; $4.

——— *Canadian Metal Trades and Preparedness.* [A study of production, imports and exports].—Canadian Mg. Inst. Bull. Aug. 1916; p 675; pp 16½; 35c.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

——— *The Profits in Zinc Smelting* [A financial discussion of the zinc smelting industry].—Mg. Jnl. July 8 1916; p 476; pp 1½; 35c.

——— *Utilization of Zinc.* [Abst. from an article in the bulletin of the Imperial Inst. The uses of spelter, zinc dust, zinc alloys and pigments are taken up separately].—Canadian Mg. Jnl. July 15 1916; p 342; pp 2; 35c.

Production

Bartels, Bergassessor.—*Russlands Gold, Platin, Blei, Silber und Zink Industrie im Jahre,* 1912. [Russia's gold, platinum, lead, silver and zinc industry in 1912. The review includes the production of the metals in Russia, Greater Russia and Siberia].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 217; pp 5; $1.50.

Bell, Robert N.—*Mining Industry of Idaho for* 1915. [A general review of the industry in the state and separate reviews of the advances and doings of different mines].—Annual Report of Inspector of Mines 1915; pp 134*.

Butler, B. S.—*Copper in* 1915. [A

prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Dunlop, J. P.; Butler, B. S.—*Silver, Copper, Lead and Zinc in the Central States in* 1915. [Separate reviews of the area, districts, states and companies].—Min. Res. of U. S.I:5; pp 93.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. U. S. I:15; pp 35c.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reviews of the metals and activities in each of the counties in the state].—Min. Res. of U. S. I:17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Montana in* 1915. [Separate reports of each metal and briefs on the metals collectively for each county].—Min. Res. of U. S. I:19; pp 36.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [The production of each mineral is reviewed separate, as are the activities in each county of the state].—Min. Res. of U. S. I:15; pp 25.

Heikes, C. V.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reports of the metals and counties' activities and productions].—Min. Res. of U. S. I:17; pp 37.

Henderson, Charles W.—*New Mexico Metal Production in* 1915. [Abst. from a U. S. G. S. report. Zinc, lead and copper are considered].—Mg. & Oil Bull. Sept. 1916; p 227; pp 3*; 25c.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Both states are reviewed separately and separate reviews of the metals produced and operations by counties are included].—Min. Res. of U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Both states are reviewed separately and separate reviews of the metals produced and operations by counties are included].—Min. Res. of U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in Colorado in* 1915. [Each metal is reviewed separately for the whole state and followed by reviews of the separate mines and mills by counties as regards their operation and production].—Min. Res. of U. S. I:16; pp 64.

Jimenez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150.

Lyon, Burt W.—*Half-Year in the Joplin Lead-Zinc District, Missouri.* [Reviews prices, production and operations].—Mg. World Aug. 5 1916; p 239; pp 3*; 10c.

Muth, E. G.—*Great Increase in Spelter Production.* [A review of production for the first half of 1916].—Zinc & Lead Jnl. June 1916; p 5; pp 2½; 20c.

Palmer, L. A.—*The Yellow Pine District, Nev.* [Describes the district, its geology and nature of the ore deposits found there. The systems of mining and milling are then reviewed and some details given].—E. & M. J. July 15 1916; p 123; pp 3*; 25c.

Siebenthal, C. E.—*Production of Primary Spelter First Half of* 1916. [Abst. from U. S. G. S. semi-annual report].—Mg. World Aug. 26 1916; p 370; pp 1¾; 10c.

Smith, E. A.—*The Development of the Spelter Industry.* [Treats on the production and conditions of the market for the year].—Jnl. Soc. of Chem. Ind. Oct. 16 1916; p 996; pp 2½; 60c.

Verne, C. E.—*Zinc's Record Breaking Year.* [A review of the first part of 1916 in the Joplin district].—Zinc & Lead Jnl. June 1916; p 3; pp 2*; 20c.

Wilson, Alfred W. G.—*Report on the Production of Spelter in Canada in* 1916. [Considerable miscellaneous information relative to zinc mining and smelting is given, besides production of the metal. Labor, mining and smelting costs are also given in some detail].—Canada Dept. of Mines, Mines Branch Report 428; pp 60.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California in* 1915.—Min. Res. of U. S. I:10; pp 51.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California and Oregon in* 1915. [Reviews the production by counties and in general].—Min. Res. of U. S. I:10; pp 51.

——— *British Columbia Annual Report of the Minister of Mines for* 1915. [Reviews metal production in general for the province and in detail for operating companies].—Mg. Engg. & Elect. Rec. Aug. 1916; p 76; pp 3½; 35c.

——— *British Columbia Report of the Minister of Mines.* [On the production and mineral industry of the province].—Mg. & Engg. Rec. Oct. 1916; p 92; pp 1½; 35c.

——— *California Mineral Production.*—E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

——— *Chinese Mineral Industry in* 1915. [A review of the production of refined metals].—July 8 1916; p 477; pp ¾; 35c.

——— *New South Wales in* 1915. [Reviews the production of metals in the country].—Mg. Jnl. Sept. 2 1916; p 596; pp 2; 35c.

——— *Rhodesia Chamber of Mines, Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau].—Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Statistical Position of Spelter.*—[Editorial review].—E. & M. J. Dec. 2 1916; p 993; pp 1; 25c.

——— *Sullivan Mine, East Kootenay, B. C.* [A description of mine operations and production, with an account of the geology of the formation and nature and occurrence of the ore bodies].—Canadian Mg. Jnl. Sept. 15 1916; p 444; pp 2¼; 35c.

CADMIUM.

Stone, G. S.—*Spelter: Its Grades and Uses.* [Tells of impurities, the amounts allowable in different grades and their effect on spelter's properties].—Mg. World Aug. 12 1916; p 287; pp 1½; 10c.

CHAPTER V.

Iron and Steel.

Iron Ores and Mining

Ashworth, James.—*The Iron and Steel Industry in British Columbia.* [Reviews mine and furnace production and conditions].—I. & C. Tr. Rev. Aug. 18 1916; p 183; pp 1*; 35c.

Brown, J. F. Kellock.—*Damascus Steel from Mount Lebanon Iron Ore.* [The geology, transportation and nature of the ores in these remote and ancient mines of Palestine are briefly described].—E. & M. J. Dec. 23 1916; p 1085; pp 1¼*; 25c.

Browne, P. W.—*Mineral Resources of Newfoundland.* [A review of the possibilities in operating the iron ore and copper deposits of the province. The past production of mines is given].—Canadian Mg. Jnl. Sept. 15 1916; p 437; pp 1¾; 35c.

Burchard, Ernest F.—*Iron Ore, Pig Iron and Steel in* 1915. [A general review of the industry, with details, and a chapter on Lake Superior ores].—Min. Res. of U. S. I:12; pp 54.

Burchard, Ernest F.—*Potash as a By-Product in the Cement and Iron Industries.* [Abst. from the Manufacturer's Record. Consists of some details in a general discussion and review of the subject].—Chem. Eng. & Mfg. Sept. 1916; p 104; pp 4; 30c.

Covitz, Philip.—*The Determination of Nickel in Iron Ores.* [A gravimetric chemical method for use with complex ores in which precipitation is brought about by the addition of ammonium hydroxide and dimethyl glyoxime].—Met. & Chem. Engg. Dec. 15 1916; p 682; pp 1¼; 35c.

Foye, W. G.—*The Relation of Titaniferous Magnetite Ores of Glamorgan Township, Haliburton County, Ontario, to the Associated Scapolitic Gabbros.* [Details of mineralogy, lithology and genesis of the deposits is given].—Eco. Geol. Nov. 1916; p 662; pp 18*; 35c.

French, Harold.—*Manufacture of Chromates from Chromite.* [This, as here described, is attained by the reaction of various chemicals in solution].—M. & S. P. Dec. 9 1916; p 845; pp 1¼; 20c.

Grasty, John S.—*Southern Iron Ores as a Source of Potash.* [Reprinted from the Manufacturers' Record].—Chem. Eng. & Mfg. Oct. 1916; p 184; pp 2¼; 30c.

Johnson, J. E., Jr.—*Blast Furnace Products.* [Speaks of the pig products used later for steel-making, foundry iron, puddling iron and ferro alloys].—Met. & Chem. Engg. Sept. 15 1916; p 324; pp 4¼; 35c.

McGrath, J. W.—*The Iron Mines of Wabana, Newfoundland.* [Describes the geology, nature of the ores, disposal of the same and mining costs].—Canadian Mg. Jnl. July 1 1916; p 315; pp 2¼; 35c.

Miller, Benjamin L.; Singewald, J. T., Jr.—*Exploitation of Chilean Mines.* [Treats on the industries from an economic and industrial standpoint].—E. & M. J. Aug. 12 1916; p 289; pp 4¼*; 25c.

Ortega, Pablo.—*Boletin De Minas, Cuba.* [Reviews the operations and production of the mines, mostly in the province of Pinar del Rio. The nature of the deposits and mines of the various companies are described. Several tables of statistics are given in the concluding pages].—Secretaria de Agricultura, Comercio y Minas, Bull. No. 1; pp 157*.

Paige, Sidney.—*Silver City, New Mexico, Folio.* [Large separate maps of the quadrangle, with a geologic description of the formation and ore deposits].—U. S. G. S. Folio No. 199; pp 19*.

Reifsneider, L. B.—*Underground Mining in Cuba.* [A method which does not interfere with operations above in surface mining. The stopes are filled after being worked out].—E. & M. J. Sept. 16 1916; p 509; pp 2¾*; 25c.

Rickard, T. A.—*J. Parke Channing and Copper Mining.* [A bibliography of Channing's life with respect to the mining industry, principally iron and copper, in this country].—M. & S. P. Sept. 30 1916; p 487; pp 12*; 20c.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Ritchings, J. W.—*The Sterling Iron Mines.* [Follows the mines from 1745 up to the present time].—E. & M. J. Sept. 9 1916; p 474; pp 1¾*; 25c.

Roesler, Max.—*Geology of the Iron-Ore Deposits of the Firmeza District, Oriente Province, Cuba.* [A very complete description of the geology, mineralogy and genesis of the ore bodies and formation related thereto].—Bull. A. I. M. E. Oct. 1916; p 1789; pp 51*; 35c.

Rossman, L. A.—*Nashwauk Iron-Washing Plants.* [Describes a small plant for washing and concentrating high-silica

ores. Hydraulic principals are used in the machines].—E. & M. J. Sept. 16 1916; p 491; pp 2¾*; 25c.

Rossman, L. A.—*Screening Rock from Iron Ore.* [Operations as followed on Mesabi range Minnesota].—E. & M. J. Oct. 28 1916; p 787; pp ¾*; 25c.

Shellshear, W.—*Flotation at the Mt. Morgan Mine, Queensland, Australia.* [A paper read before the Aust. Inst. of Mg. Eng. Operations are described though tests are given more consideration].—Mg. World Oct. 28 1916; p 741; pp 3; 10c.

Smeeth, W. F.—*Annual Report for the Year* 1914. [Part I takes up production and general conditions of the industry, while Part II is more of a geologic nature on several of the districts in the state].—Mysore Dept. of Mines and Geol.; pp 188*; $1.75.

Smeeth, W. F.; Iyengar, P. S.—*Mineral Resources of Mysore, India.* [A brief account of the more important economic minerals, their occurrence and distribution, with notes on their mining and metallurgical treatment and uses].—Mysore Dept. of Mines & Geol. Bull. 7; pp 193; $1.50.

Tucker, W. B.—*Mines and Mineral Resources of Amador, Calaveras, Tuolumne.* [Economic mineral products are reviewed by separate descriptions of deposits and mines, with some information on the condition of the country].—Calif. Mg. Bur.; pp 180*.

Wolff, J. F.—*Recent Geologic Developments on the Mesabi Iron Range, Minnesota.* [A complete geological review of recent findings which tend to correlate the formation and ore bodies].—Bull. A. I. M. E. Oct. 1916; p 1763; pp 25*; 35c.

Zimmer, G. F.—*The Use of Meteoric Iron by Primitive Man.* [A paper read before the Iron and Steel Inst., London].—I. & C. Tr. Rev. Sept. 22 1916; p 337; pp 5*; 35c.

——— *Anuual Report of Mine Inspector for Marquette County, Mich.* [Describes the accidents separately and classifies them in tabulated form].—Annual Report Sept. 30, 1916; pp 18.

——— *Die Bergwerksindustrie und Bergverwaltung Preussens im Jahre* 1913. [The mining industry of Prussia in 1913. Coal for the greater part is produced here].—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 367; pp 43½; $1.50.

——— *Japanese Mining Expansion.*—E. & M. J. July 15 1916; p 143; pp 1; 25c.

——— *Iron Ore Deposits of Cuba and Method of Mining.* [Both hard and soft ores are found].—Mg. World July 1 1916; p 13; pp 1¼*; 10c.

——— *Metal Production of Ontario, First Half of* 1916.—Mg. World Oct. 7 1916; p 626; pp 1; 10c.

——— *Quarrying and Shipping Iron Ore.* [A description of the Broken Hill Proprietary Co.'s mine, Australia].—Mg. & Engg. Rev. Sept. 5 1916; p 308; pp 7*; 35c.

——— *Rhodesia Chamber of Mines, Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau].—Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

——— *The Swedish Iron, Steel and Coal Industry in* 1915. [Some of the statistics, curves, etc., are taken from Jern-Kontoret's Annaler].—I. & C. Tr. Rev. Nov. 17 1916; p 614; pp 1*; 35c.

Iron and Steel

Becker, A. J.—*The Strength and Stiffness of Steel Under Biaxial Loading.* [Shows curves and gives the results of many tests in tabulated form with discussion].—Univ. of Ill. Bull. 85; pp 65*.

Belaiew, N. I.; Goudstow, N. T.—*Sur La Limite Elastique de L'Acier.* [From Revue de la Soc. Russe de Metallurgie on the elastic limit and other physical properties of steel under varying conditions].—Metallurgie, French; p 116; pp 33*; 75c.

Benedicks, Carl.—*A New Thermo-Electric Method of Studying Allotropic Changes in Iron or Other Metals.* [Abst. from a paper read before the British Iron & Steel Inst.].—Met. & Chem. Engg. Sept. 15 1916; p 337; pp 3; 35c.

Brearley, A. W.—*Some Properties of Ingots.* [A metallographic review of the peculiarities of ingots made under varying conditions. Reproductions of the structure of the steel are shown].—Iron & Steel Inst. Adv. Copy 1; pp 34*; 50c.; I. & C. Tr. Rev. Sept. 22 1916; p 344; pp 6*; 35c.; Iron Age Oct. 26 1916; p 943; pp 4*; 30c.

Browning, P. E.; Simpson, G. S.; Porter, L. E.—*On the Qualitative Separation and Detection of Tellurium and Arsenic, Iron and Thallium, and Zirconium and Titanium.* [Details of procedure for this

chemical method are given].—American Jnl. of Sci. Aug. 1916; p 106; pp 3; 60c.

Bullens, Denison K.—*Steel and Its Heat Treatment.* [Omits intricate formulas and questionable theory].—Wiley & Sons; book; pp 431*; $3.75.

Burchard, Ernest F.—*Iron Ore, Pig Iron and Steel in* 1915. [A general review of the industry, with details, and a chapter on Lake Superior ores].—Min. Res. of U. S. I:12; pp 54.

Cain, J. R.; Schramm, E.; Cleaves, H. E.—*Preparation of Pure Iron and Iron Carbon Alloys.* [Laboratory investigations the results of which may be used in large plant operations].—U. S. Bur. of Stand. Sci. Paper 266; pp 25*; 20c.

Campbell, Edward D.—*The Influence of Heat Treatment on the Thermo-Electric Properties and Specific Resistance of Carbon Steels.* [The results and nature of the tests are described and 8 curves are reproduced showing the results of these and other tests].—Iron & Steel Inst. Adv. Copy 2; pp 18*; 50c.

Carnell, W. C.—*Acid Resisting Alloys.* [A paper read before the American Inst. of Chem. Eng. Deals with the properties of duriron, tantiron and the like].—Iron Age July 27 1916; p 182; pp 1¼; 30c.

Comstock, George F.—*A Method of Distinguishing Sulphides from Oxides in the Metallography of Steel.* [Points out places where many mistakes are today being made in the use of this art for minutely studying the structure of steel].—A. I. M. E. Bull. Dec. 1916; p 2103; pp 8*; 35c.

Comstock, George F.—*The Presence of Alumina in Steel.* [A paper read before the American Foundrymen's Assn. This paper points out that alumina may be distinguished from non-metallic inclusions and shows how it may be distinguished].—I. Tr. Rev. Sept. 21 1916; p 563; pp 5*; 25c. Iron Age Sept. 14; p 582; pp 2¾*; 30c.

Cone, Edwin F.—*Converter Steel Castings Low in Manganese.* [Unusual effect of attempts at economy by reducing the ferroalloy additions].—Iron Age Sept. 14 1916; p 578; pp 2¼*; 30c.

Copeland, Clem A.—*Properties of Iron and Steel Wires and Cables.* [Gives curves and tabulated data showing both physical and electrical properties].—Jnl. Elect., Power & Gas Aug. 26 1916; p 157; pp 2¼*; 35c.

Corse, W. M.; Comstock, G. F.—*Some Copper-Aluminum-Iron Alloys.* [Deals with the physical properties and nature of the alloy. A metallographic review of the alloys and the results of physical tests are given].—American Inst. of Metals Adv. Paper 14; pp 16*; 35c.

Crook, Welton J.—*Use of Manganese in the Manufacture of Iron and Steel.* [The properties of pig iron with manganese, manganese steel, manganese in steel and ferro-manganese are among the things considered].—Pahasapa Dec. 1916; p 24; pp 7; 35c.

Cubillo, Leandro.—*La Industria Siderurgica Espanola.* [On the metallurgical industry of Spain, with particular reference to the steel, iron and alloy industries].—Revista Minera Aug. 1 1916; p 365; pp 3; Aug. 8; p 377; pp 3¼; 70c.

Donaldson, J. W.—*Gases Occluded in Alloy Steel.* [A paper awarded the Carnegie Scholarship by the Iron & Steel Inst. The effects of different metals on the volume of gas is given].—Iron Age Oct 26 1916; p 928; pp 3; 30c.

Edwards, C. A.—*The Physical Chemical Properties of Steel.* [A treatise on the metallography, properties and nature of steel].—Charles Griffin & Co., Strand, E. C.; book; pp 200*; $3.

Edwards, J. W.—*Industrial Diseases of Iron and Steel Workers in Middlesborough, England.* [A paper read before the British Medical Assn.].—I. & C. Tr. Rev. Aug. 11 1916; p 153; pp 1; 35c.

Fechtchenkotchopovsky, S. A.—*Cementation of Iron.*—Rev. Soc. Russe de Metall, 1914; No. 1; p 245; pp 65.

Gray, F. W.—*The Iron and Steel Industry in Nova Scotia.* [Confined to considering plant and company operations and activities].—Canadian Mg. Jnl. Dec. 15 1916; p 579; pp 1¼; 35c.

Hall, John H.—*Iron and Steel Castings.* [A paper read before the International Engineering Congress].—Canadian Mg. Jnl. Dec. 15 1916; p 581; pp 2¾; 35c.

Harbord, F. W.; Hall, J. W.—*Metallurgy of Steel.* [An up-to-date review of practice in steel metallurgy].—Lippincott Co.; book; pp 933; $12.50.

Hayward, Carle R.—*The Effect of Sulphur on Low-Carbon Steel.* [A review of metallographic tests giving both the structure and change in physical properties due to the presence of sulphur].—Bull. A. I. M. E. Oct. 1916; p 1841; pp 10*; 35c.

Hibbard, Henry D.—*Manufacture and Uses of Alloy Steels.*—U. S. Bur. of Mines Bull. 100; pp 77*; 20c.

Hood, B. B.—*Proper Current Densities.* [Curves are given from which the proper current density for both steel and copper transmission lines may be found together with some costs related thereto].—Met. &

Chem. Engg. Nov. 15 1916; p 571; pp 2¼*; 35c.

Janssen, W. A.—*Use of Titanium in Steel Castings.* [A paper read before the American Foundrymen's Assn. telling of some of the advantages of ferro-titanium as a deoxidizer].—I. Tr. Rev. Sept. 14 1916; p 507; pp 5*; 25c.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [Separate brief reviews on the effects of other metals and non-metals on the properties of iron].—Met. & Chem. Engg. Nov. 1 1916; p 7½; Nov. 15 1916; p 8; Dec. 1 1916; p 5; Dec 15 1916; p 1¼; $1.40.

June, Robert.—*Insuluminum.* [Tests and description of a new ferro-aluminum alloy with great heat resisting properties].—Pract. Eng. Nov. 1 1916; p 674; pp 2*; 20c.

Kalmus, Herbert T.; Blake, K. B.—*balt-Iron Alloy.* [Describes a number of tests].—Canada Dept. of Mines No. 413; pp 18*.

Kelley, G. L.; Conant, J. B.—*The Determination of Chromium and Vanadium in Steel by Electrometric Titration.*—Jnl. Ind. & Engg. Chem. Aug. 1916; p 719; pp 4¼; 60c.

Kilby, J. N.—*Steel Ingot Defects.* [The principles of things affecting acid and basic openhearth and Bessemer steel. Various pieces of equipment and methods are also described].—Iron & Steel Inst. Adv. Copy 4; pp 12*; 50c.

McLeish, John.—*The Production of Iron and Steel in Canada During* 1915. [Production statistics and other information allied with the iron and steel trade are included].—Canada Mines Branch; Report 419; pp 48.

Phelps, Charles C.—*Shanking Drill Steels.* [Explanatory drawings are shown].—E. & M. J. Aug. 26 1916; p 387; pp 3½*; 25c.

Portevin, M. Albert.—*Influence du Temps de Chauffage Avant la Trempe sur les Resultats de Cette Operation.* [The influence of temperature changes with respect to steel and iron].—Metallurgie, French Feb. 1916; p 9; pp 70*; 50c.

Pulsifer, H. B.—*The Determination of Sulphur in Iron and Steel.* [The many methods used in the past and today are briefly described and discussed and the bibliography of 285 articles on the subject is given].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1115; pp 8½*; 60c.

Sauveur, Albert.—*Detecting Alumina Inclusions in Steel.* [A microscopic investigation as to the occurrence and appearance of alumina particles].—Iron Age July 27 1916; p 180; pp 2*; 30c; I. Tr. Rev. July 27; p 179; pp 2*; 25c.

Sherry, Ralph H.—*Crystallization in Cold Worked Steel.* [A paper read before the Society of Automobile Engineers].—Iron Age July 13 1916; p 76; pp 3*; 30c.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* (Abst. of a paper read before the Iron and Steel Inst.].—I. & C. Tr. Rev. Sept. 22 1916; p 350; pp 2⅓*; 35c.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* [Gives the results of tests made on steels containing small amounts of other metals, as copper, tin, silicon, phosphorus, sulphur, etc.].—Iron & Steel Inst. Adv. Copy; pp 91*; 50c.

Stead, J. E.—*Notes on the Effect of Blast-Furnace Gases on Wrought Iron.* [Tests of various kinds were made to determine this effect].—Iron & Steel Inst. Adv. Copy 7C; pp 7*; 50c.

Stead, J. E.—*Notes on Nickel Steel Scale and on the Reduction of Solid Nickel and Copper Oxides by Solid Iron.* [Gives the method of procedure and results obtained in experimental work].—Iron & Steel Inst. Adv. Copy 7A; pp 9*; 50c.

Stone, G. S.—*Spelter: Its Grades and Uses.* [Tells of impurities, the amounts allowable in different grades and their effect on spelter's properties].—Mg. World Aug. 12 1916; p 287; pp 1½; 10c.

Swindin, Norman.—*Design of Acid Resisting Iron Apparatus.* [These are made of iron-silicon alloys in varying proportions. To make them resistive to acids the toughness of the metal must at present be sacrificed].—Met. & Chem. Engg. Dec. 1 1916; p 647; pp 2½*; 35c.

Swindin, N.—*The Design of Acid-Resisting Iron Apparatus.* [Tells considerable about the making of castings and treatment of the iron to be used in the same].—Chem. Tr. Jnl. No. 59 1916; p 323; pp 2.

Thornton, W. M., Jr.—*The Separation of Thorium from Iron with the Aid of the Ammonium Salt of Nitrosophenylhydroxylamine.*—American Jnl. of Sci. Aug. 1916; p 151; pp 4*; 60c.

Touceda, Enrique.—*Normal Fracture of Good Malleable Iron.* [A paper read before the American Foundrymen's Assn. on the effect of haphazard fractures and the burning out of surface carbon, showing an erroneous theory regarding the

strength].—Iron Age Sept. 14 1916; p 576; pp 2*; 30c.

Tschishewsky, N.; Herdt, A.—*Iron-Boron and Iron-Carbon Alloys.* [A paper from the Journal of the Russian Met. Soc. Gives the properties, method of preparation and equilibrium curve for the alloys].—Iron Age Aug. 24 1916; p 396; pp 2*; 30c.

Van Name, R. G.; Hill, D. U.—*On the Rates of Solution of Metals in Ferric Salts and in Chromic Acid.* [A discussion and description of experimental work. The nature of the different experiments and results obtained are given].—American Jnl. of Sci. Oct. 1916; p 301; pp 31½*; 60c.

Young, Ralph A.—*Testing of Dredge Bucket Pins.* [On the use of carbon-steel instead of more expensive alloyed steels].—E. & M. J. Aug. 26 1916; p 377; pp 2¼*; 25c.

——— *Electric Alloy Steels Made on Tonnage Basis.* [A detailed description of the plant equipment and operation is given].—Iron Age Sept. 14 1916; p 571; pp 3¾*; 30c.

——— *El Acero Martin en el Mundo.* [The production of high-speed steels in the world compared with other classes of steel].—Revista Minera Aug. 24, 1916; p 402; pp 2; Sept. 1; p 417; pp 1¼; Sept. 8; p 428; pp 1¾; Sept. 16; p 437; pp 3¼; Sept. 24; p 453; pp 1½; Oct. 1; p. 462; pp 2¼; $2.10.

——— *German Steel Syndicate and Cartells.* [The syndicate, its formation, operation and effects on the industry].—I. & C. Tr. Rev. July 7 1916; p 1; pp 4; 35c.

——— *Hardness Tests.* [A report of a committee appointed by the Inst. of Mech. Eng., England, on hardness tests on hardened journals and pins].—I. Tr. Rev. Dec. 8 1916; p 696; pp 1⅓; 35c.

———. *Pacific Coast Steel Co.'s Plans.* [The plants described are located at both Seattle, Wash., and San Francisco, Cal.].—Iron Age July 27 1916; p 175; pp 4½*; 30c.

——— *The Swedish Iron, Steel and Coal Industry in* 1915. [Some of the statistics, curves, etc., are taken from Jern-Kontoret's Annaler].—I. & C. Tr. Rev. Nov. 17 1916; p 614; pp 1*; 35c.

Iron and Steel: Foundry and Furnace Practice

Ashworth, James.—*The Iron and Steel Industry in British Columbia.* [Reviews mine and furnace production and conditions].—I. & C. Tr. Rev. Aug. 18 1916; p 183; pp 1*; 35c.

Baker, David F.—*Oxygen in Blast Furnace Operations.* [Its use in opening frozen and hard tap-holes, frozen cylinder notches or tuyeres that are plugged with iron].—Iron Age Aug. 24 1916; p 398; pp 2; 30c.

Campbell, H. H.—*Evolution of American Open Hearth Practice.*—Iron Age Aug. 31 1916; p 448; pp 2½; 30c.

Campbell, H. H.—*The Passing of the Acid Bessemer.* [The phases of its career and an account of its gradual passing].—Iron Age Aug. 10 1916; p 302; pp 2; 30c.

Cooper, M. Stanley.—*L'Industrie des Sous-Produits du Coke et Son Rapport Avec La Fabrication du Fer at de L'Acier.* [Abstract from the journal of the Iron and Steel Inst. dealing with the by-product coke industry and the making of iron and steel].—Metallurgie, French Feb. 1916; p 79; pp 22*; 75c.

Hamilton, Robert.—*Recovery of By-Products from Blast Furnace Gases.* [Brief reviews of several methods and the progress being made in this work].—Jnl. of Soc. of Chem. Ind. June 30 1916; p 663; pp 2¼; 35c.

Harbord, F. W.; Hall, J. W.—*Metallurgy of Steel.* [An up-to-date review of practices in steel metallurgy].—Lippincott Co.; book; pp 933; $12.50.

Harbord, F. W.; Hall, J. W.—*The Metallurgy of Steel.* [A complete treatise on the subject].—Charles Griffin & Co., Strand, E. C.; book; $10.

Harley, Andrew.—*Testing Malleable and Cast Steel.* [An address before the British Foundrymen's Assn. An English view on the scientific manufacture of small castings].—I. Tr. Rev. July 20 1916; p 121; pp 7*; 25c.

Howland, H. P.—*Calculations with Reference to the Use of Carbon in Modern American Blast Furnaces.* [Discussion giving results of thermic tests and chemical reactions].—Bull. A. I. M. E. July 1916; p 1245; pp 7; 35c.

Johnson, J. E., Jr.—*Blast Furnace Irregularities and Their Treatment.* [Tells of remedies for and discusses many things unusual in furnace operation, such as a chilled hearth.—Met. & Chem. Engg. July 15 1916; p 69; pp 8*; 30c.

Johnson, J. E., Jr.—*Blast Furnace Products.* [Speaks of the pig products used later for steel-making, foundry iron, puddling iron and ferro alloys].—Met. & Chem. Engg. Sept. 15 1916; p 324; pp 4¼; 35c.

Johnson, J. E., Jr.—*Commercial Considerations Concerning the Blast Furnace.* [Includes location, construction, costs, size and rate of driving the furnace, limitations to fuel economy and the dry blast].—Met. & Chem. Engg. Sept. 1 1916; p 235; pp 9½*; 35c.

Johnson, J. E., Jr.—*The Rate of Driving the Blast Furnace.* [The effects resulting from too slow or fast a rate are discussed in detail in particular on the power requirements for blowing and fuel consumption].—Met. & Chem. Engg. July 1 1916; p 21; pp 4¾*; 30c.

Kilby, J. N.—*Steel Ingot Defects.* [The principles of things affecting acid and basic openhearth and Bessemer steel. Various pieces of equipment and methods are also described].—Iron & Steel Inst. Adv. Copy 4; pp 12*; 50c.

Osann, B.—*Behavior of Sulphur in the Blast Furnace.* [The reduction is regarded as taking place in the semi-solid magma].—Stahl & Eisen 1916; No. 36; p 210; pp 5; 35c.

Pawloff, M. A.—*Properties of Blast Furnace Slags and Methods of Calculating Charges.*—Rev. Met. Nov. 13 1916, p 50; pp 11; $1; Jrl. Soc. Chem. Ind. Nov. 15 1916; p 1111; pp 1; 75c.

Portevin, M. Albert.—*Influence du Temps de Chauffage Avant la Trempe sur les Resultats de Cette Operation.* [The influence of temperature changes with respect to steel and iron].—Metallurgie, French Feb. 1916; p 9; pp 70*; 50c.

Stead, J. E.—*Notes on the Effect of Blast-Furnace Gases on Wrought Iron.* [Tests of various kinds were made to determine this effect].—Iron & Steel Inst. Adv. Copy 7C; pp 7*; 50c.

Watkins, J. A.—*Health Conservation in Steel Mills.*—U. S. Bur. of Mines Tech. Paper 102; pp 36; 15c.

——— *Basic Phosphate Fertilizer as a By-Product in Iron Smelting.* [A method used in connection with open-hearth smelting].—Chem. Eng. & Mfg. Aug. 1916; p 68; pp 1*; 30c.

CHAPTER VI.

Alloys, Antimony, Manganese, Molybdenum, Tungsten, Etc.

ALLOYS

Arnou, G.; Portevin, A.—*Le Traitement Thermique du Bronze D'Aluminium a 10% D'Aluminium.* [On the thermic treatment and properties of bronze containing 10% aluminum].—Metallurgie, French April 1916; p. 101; pp 15*; 75c.

Arthur, W.—*Season Cracking and Self-Annealing of Brass.*—A. I. of Metals Adv. Paper No. 4; pp 7*; 35c.

Barnes, E. A.—*The Brass Foundry.* [A general review of brass foundry practice].—Amer. Inst. of Metals Adv. Copy 18; pp 7; 35c.

Broniewski, M. Witold.—*Sur la Scructure des Alliages Cuivre-Zinc et Cuivre-Etain.* [A metallographic study on copper-zinc and copper-tin alloys].—Metallurgie French Nov. 1915; p. 951; pp 29*; 50c.

Cain, J. R.; Schramm, E.; Cleaves, H. E.—*Preparation of Pure Iron and Iron Carbon Alloys.* [Laboratory investigations the results of which may be used in large plant operation].—U. S. Bur. of Stand. Sci. Paper 266; pp 25*; 20c.

Campbell, William.—*Recent Progress in Metallography.* [With some description the greater part is a bibliography of literature].—Amer. Inst. of Metals Adv. Copy 17; pp 63; 35c.

Carnell, W. C.—*Acid Resisting Alloys.* [A paper read before the American Inst. of Chem. Eng. Deals with the properties of duriron, tantiron and the like].—Iron Age July 27 1916; p 182; pp 1¼; 30c.

Clark, W. W.—*The Manufacture and Use of Alumino Vanadium.* [On the alloys of these two metals].—Trans. American Inst. of Metals Vol. IX; p 159; pp 8*; 35c.

Corse, W. M.—*Aluminum Bronze Alloys.* [A current review of the nature of the several alloys].—Trans. American Inst. of Metals Vol. IX; p 194; pp 11*; 35c.

Corse, W. M.; Comstock, G. F.—*Some Copper-Aluminum-Iron Alloys.* [Deals with the physical properties and nature of the alloy. A metallographic review of the alloys and the results of physical tests are given].—American Inst. of Metals Adv. Paper 14; pp 16*; 35c.

Corse, W. M.; Comstock, G. F.—*Tests of Aluminum Bronze.* [Abst. from a paper read before the American Soc. for Testing Materials. Curves are shown and it is stated that a double heat treatment increases the resistance to alternating stresses].—Iron Age July 13 1916; p 80; pp 1¼*; 30c.

Cubillo, Leandro.—*La Industria Siderurgica Espanola.* [On the metallurgical industry of Spain, with particular reference to the steel, iron and alloy industries].—Revista Minera Aug. 1 1916; p 365; pp 3; Aug. 8; p 377; pp 3¼; 70c.

Dunstan, B.—*Queensland Mineral Deposits, Australia.* [Occurrence, production, values, prospects and properties by the chief Government Geologist].—Queen. Gov't Mg. Jnl. July 15 1916; p 314; pp 1¾; 35c.

Fahrenwald, Frank A.—*The System Tungsten-Molybdenum.* [Treats on the metallography, physical characters and thermic properties of tungsten-molybdenum alloys].—Bull. A. I. M. E. June 1916; p 1049; pp 7*; 35c.

Haynes, Elwood.—*Stellite.* [An alloy of cobalt and chromium principally].—Trans. American Inst. of Metals Vol. IX; p 333; pp 3; 35c.

Hibbard, Henry D.—*Manufacture and Uses of Alloy Steels.*—U. S. Bur. of Mines Bull. 100; pp 77*; 20c.

Howe, Henry M. — *Recrystallization After Plastic Deformation.* [Deals with recrystallization after the cold-working of brass].—Bull. A. I. M. E. Oct. 1916; p 1851; pp 10*; 35c.

Hoyt, Samuel L.—*Notes on the Copper-Rich Kalchoids.* [Speaks of the different copper-tin-zinc alloys].—Trans. American Inst. of Metals Vol. IX; p 83; pp 14*; 35c.

Hoyt, S. L.—*The Tenary Alloys of Copper, Tin and Zinc—the Kalchoids.* [A review of the properties].—Trans-American Inst. of Metals Vol. IX; p 364; pp 31*; 35c.

Jeffries, Zay. — *Tungsten-Molybdenum Equilibrium Diagram and System of Crystallization.* [A method for the determination of the melting point of metals and alloys with high fusion points].—Bull. A. I. M. E. July 1916; p 1225; pp 12*; 35c.

Jones, Jesse, L.—*The Manufacture and Uses of Wrought Manganese Bronze.*—Trans. American Inst. of Metals Vol. IX; p 264; pp 9; 35c.

Jonson, Ernst.—*Notes on the Inspec-*

tion of Bronze and Brass. [A general talk on the inspection of castings].—Amer. Inst. of Metals Adv. Paper 19; pp 11; 35c.

June, Robert.—*Insuluminum.* [Tests and description of a new ferro-aluminum alloy with great heat resisting properties].—Pract. Eng. Nov. 1, 1916; p 924; pp 2*; 20c.

Kalmus, Herbert T.; Blake, K. B.—Magnetic Properties of Cobalt and Cobalt-Iron Alloy. [Describes a number of tests].—Canada Dept. of Mines No. 413; pp 18*.

Karr, C. P.—*Report on a Series of Comparative Tests of Zinc-Bronze* (88 *Cu*-10 *Sn*-2 *Zn*) *Standard Test Bars.* [Deals entirely with physical tests and the results obtained].—American Inst. of Metals Adv. Paper 16; pp 12; 35c.

McFarland, David F.; Harder, Oscar E.—*The Alloys of Chromium, Copper and Nickel.* [Treats on the composition, properties, etc., of different mixtures making this alloy].—Trans. American Inst. of Metals Vol. IX; p 119; pp 26*; 35c.

Merica, P. D.; Woodward, R. W.—*The Failure of Structural Brasses.* [Deals with the nature of the failure and properties of brasses].—Trans. American Inst. of Metals Vol. IX; p 298; pp 35*; 35c.

Merica, Paul D.; Karr, C. P.—*The Initial Stress Produced by the Burning-In of Manganese Bronze.*—A. I. of Metals Adv. Paper No. 8; pp 8*; 35c.

Northrup, E. F.; Sherwood, R. G.—*New Method of Measuring Resistivity of Molten Materials: Results for Certain Alloys.* [Gives complete details of the method of procedure and results in some cases].—Jnl. Franklin Inst. Oct. 1916; p 477; pp 35*; 60c.

Parr, S. W.—*The Development of an Acid Resisting Alloy.* [The alloy contains nickel and chromium with many other ingredients in small quantities].—Trans. American Inst. of Metals Vol. IX; p 211; pp 7*; 35c.

Parr, S. W.; McFarland, D. F.—*The Analysis of Complex Alloys of Chromium, Copper, Nickel Type.* — Trans. American Inst. of Metals Vol. IX; p 218; pp 6; 35c.

Price, William B.; Davidson, Philip.—*Physical Tests on Common High Brass Taken Parallel and at Right Angles to the Direction of Rolling.* [The results and nature of the physical tests under varying conditions, with a metallographic review, is given].—American Inst. of Metals Adv. Paper 12; pp 32*; 35c.

Rawdon, Henry S. — *Standard Test Specimen of Zinc-Bronze.* [Relations of mechanical properties to microstructure are taken up in detail].—Trans. American Inst. of Metals Vol. IX; p 60; pp 22*; 35c.

St. John, H. M.—*Electric Brass Melting from the Central Station Viewpoint.*—Trans. American Inst. of Metals Vol. IX; p 395; pp 9; 35c.

Schirmeister, H.—*The Binary Alloys Aluminum.* [The influence of the 20 most important metals on aluminum].—Stahl & Eisen 1916; No. 35; p 648, 873 and 996; $1.05.

Sleeth, S. D.—*Alloys to Withstand Internal Air Pressure.*—A. I. of Metals Adv. Paper No. 3; pp 3; 35c.

Taggart, Arthur F.—*The Reclamation of Brass Ashes.* [Methods of concentration are given in detail, with results of tests].—A. I. of Metals Adv. Paper No. 5; pp 12*; 35c.

Tschishewsky, N.; Herdt, A.—*Iron-Boron and Iron-Carbon Alloys.* [A paper from the Journal of the Russian Met. Soc. Gives the properties, method of preparation and equilibrium curve for the alloys].—Iron Age Aug. 24 1916; p 396; pp 2*; 30c.

Wolf, Fred L.; Burr, Robert B.—*Tests of Natural Gas Fired, Brass Melting Furnaces Under Factory Operating Conditions.*—Trans. American Inst. of Metals Vol. IX; p 343; pp 24*; 35c.

——— *Canadian Metal Trades and Preparedness.* [A study of production, imports and exports].—Canadian Mg. Inst. Bull. Aug. 1916; p 675; pp 16½; 35c.

——— *Electric Alloy Steels Made on Tonnage Basis.* [A detailed description of the plant equipment and operation is given].—Iron Age Sept. 14 1916; p 571; pp 3¾*; 30c.

——— *Utilization of Zinc.* [Abst. from an article in the bulletin of the Imperial Inst. The uses of spelter, zinc dust, zinc alloys and pigments are taken up separately].—Canadian Mg. Jnl. July 15 1916; p 342; pp 2; 35c.

ANTIMONY

Bakin, H. M.; Mertie, J. B.; Harrington, G. L.—*The Cosna-Nowitna and Ruby-Kuskokwim Regions, Alaska.* [The geology, geography and mineral resources of the country are first reviewed and followed by separate descriptions of the districts].—U. S. G. S. Bull. 642-H; pp 56*.

Brooks, Alfred H.—*Antimony Deposits*

of Alaska. [A general review and classification is first made and each district is taken separately, giving a complete review later].—U. S. G. S. Bull. 649; pp 64*.

Brooks, Alfred H.—*Mineral Resources of Alaska.* [Description of mines and deposits, reviewing their production, geology and geography. The coal mining lease laws are also spoken of].—U. S. G. S. Bull. 642; pp 279*.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Layng, H. R.—*Determination of Antimony.* [Method of procedure for a wet chemical method].—M. & S. P. July 8 1916; p 57; pp 1½*; 20c.

Singewald, Joseph T. Jr.; Miller, Benjamin L.—*The Mining Industry of Bolivia.* [A general description with some details of the people, geography of the country, and operation and production of the mines].—E. & M. J. Dec. 9 1916; p 1005; pp 5*; 25c.

Von Bacho, F.—*Quantitative Analysis of Antimony Trisulphide and the Products Obtained from It by Roasting.*—Jnl. Soc. Chem. Ind. 1916 No. 110; p 496; pp 2; 75c.

——— *Antimony Ore in Southern Rhodesia.* [Types of occurrence and methods for calculating shipments and cost of the same are explained].—S. Afr. Mg. Jnl. Aug. 19 1916; p 465; pp 1; 35c.

——— *California Mineral Production.*—E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

——— *Chinese Mineral Industry in* 1915. [A review of the production of refined metals].—July 8 1916; p 477; ¾; 35c.

BISMUTH

Ball, L. C.—*Wolfram, Molybdenite and Bismuth Mines of Bamford, North Queensland, Australia.*—Queen. Geol. Surv. Report.

Figueroa, T.; Carbonell, A.—*Notas Sobre Los Yacimientos Bismutiferos de Azuel, Cordoba, Spain.* [Notes on the nature and production of a bismuth ore in Spain).—Revista Minera Oct. 16 1916; p 491; pp 2; 35c.

Jiminez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150.

Miller, Benjamin L.; Singewald, Joseph T., Jr.—*The Huaynni-Potesi Bismuth-Tin Mines in Bolivia.* [Other minerals occur, though these are the principal ones. Mining, milling and operations and conditions in the district in general are reviewed].—E. & M. J. Dec. 16 1916; p 1065; pp 3*; 25c.

Singewald, Joseph E.; Miller, Benjamin L.—*Prominent Mines of Junin, Peru.* [Three mines in the same district are described as regards their ore deposits. One is vanadium, one bismuth and the last silver].—E. & M. J. Sept. 30 1916; p 583; pp 4¼*; 25c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Mining Industry of Bolivia.* [A general description with some details of the people, geography of the country, and operation and production of the mines].—E. & M. J. Dec. 9 1916; p 1005; pp 5*; 25c.

——— *New South Wales Department of Mines: Annual Report for* 1915. [A general review of mine operations and activities during the year].—N. S. W. Dept. of Mines, Sydney.

CHROMIUM

Bancroft, J. Austen.—*Mining Operations in Quebec During* 1915. [A separate report on the geology of the zinc-lead deposits in Portneuf county is included].—Quebec Dept. of Mines; Report; pp 146*.

Bradley, Walter W.—*Mines and Mineral Resources of Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma and Yolo Counties, California.* [Separate descriptions of mines, deposits and operations of mines and plants].—Calif. Mg. Bur.; pp 208*.

French, Harold.—*Manufacture of Chromates from Chromite.* [This, as here described, is attained by the reaction of various chemicals in solution].—M. & S. P. Dec. 9 1916; p 845; pp 1¼; 20c.

Haynes, Elwood.—*Stellite.* [An alloy of cobalt and chromium principally].—Trans. American Inst. of Metals Vol. IX; p 333; pp 3; 35c.

Kelley, G. L.; Conant, J. B.—*The Determination of Chromium and Vanadium in Steel by Electrometric Titration.*—Jnl. Ind. & Engg. Chem. Aug. 1916; p 719; pp 4¼; 60c.

McFarland, David F.; Harder, Oscar E.—*The Alloys of Chromium, Copper and Nickel.* [Treats on the composition, properties, etc., of different mixtures making this alloy].—Trans. American Inst. of Metals Vol. IX; p 119; pp 26*; 35c.

Parr, S. W.; McFarland, D. F.—*The Analysis of Complex Alloys of Chromium, Copper, Nickel Type.*—Trans. American Inst. of Metals Vol. IX; p 218; pp 6; 35c.

Richards, J. W.—*The Metallurgy of the Rarer Metals.* [Abst. from a paper read before the American Inst. of Chem. Eng. Discussing the importance of the future of magnesium, chromium and other metals].—Mg. World July 15 1916; p 93; pp 1¼; 10c.

Smeeth, W. F.; Iyengar, P. S.—*Mineral Resources of Mysore, India.* [A brief account of the more important economic minerals, their occurrence and distribution, with notes on their mining and metallurgical treatment and uses].—Mysore Dept. of Mines & Geol. Bull. 7; pp 193; $1.50.

Van Name, R. G.; Hill, D. U.—*On the Rates of Solution of Metals in Ferric Salts and in Chromic Acid.* [A discussion and description of experimental work. The nature of the different experiments and results obtained are given].—American Jnl. of Sci. Oct. 1916; p 301; pp 31½*; 60c.

——— *Quebec Mining Industry—A Review for the First Half of* 1916. [Brief accounts of operations at various properties].—Canadian Mg. Inst. Bull. Sept. 1916; p 796; pp 4; 50c.

——— *Rhodesia Chamber of Mines Report of the Executive Committee.* [Tables of details on the production of gold and asbestos properties in the district are given].—Rhodesia Chamber of Mines Report Aug. 1916; pp 6*.

———. *Rhodesia Report of the Executive Committee of the Chamber of Mines and Production of Gold and Other Minerals in May* 1915. [The production of operating gold companies is given individually].—Rhodesia Chamber of Mines Report May 1916; pp 6.

MANGANESE

Bradley, Walter W.—*Mines and Mineral Resources of Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma and Yolo Counties, California.* [Separate descriptions of mines, deposits and operations of mines and plants].—Calif. Mg. Bur.; pp 208*.

Cone, Edwin F.—*Converter Steel Castings Low in Manganese.* [Unusual effects of attempts at economy by reducing the ferroallay additions].—Iron Age Sept. 14 1916; p 578; pp 2¼*; 30c.

Crook, Welton J.—*Use of Manganese in the Manufacture of Iron and Steel.* [The properties of pig iron with manganese, manganese steel, manganese in steel and ferro-manganese are among the things considered].—Pahasapa Dec. 1916; p 24; pp 7; 35c.

Dunstan, B.—*Queensland Mineral Deposits.* [Deals with the geology, chemistry and metallurgy of magnesite, dolomite and magnesium salts].—Queen. Govt. Mg. Jnl. Nov. 15 1916; p 529; pp 4½; 35c.

Hartmann, M. L.—*The Chemistry of Manganese.* [Describes the chemical properties and nature of manganese and its chemical activity and combination with other chemicals].—Pahasapa Dec. 1916; p 18; pp 6; 35c.

Hewett, D. F.—*Manganese and Manganiferous Ores in* 1915. [Primary ores, both domestic and foreign, are spoken of, as also are the production and values of ores].—Min. Res. of U. S. I:4; pp 15.

Hewett, D. F.—*Some Manganese Mines in Virginia and Maryland.* [On the geology, mineralogy and occurrence of the ores and methods of milling and mining at several mines].—U. S. G. S. Bull. 640-C; pp 35*.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [The effects of several different elements on iron are treated separately].—Met. & Chem. Engg. Nov. 15 1916; p 588; pp 8*; 35c.

Jones, Jesse. L.—*The Manufacture and Uses of Wrought Manganese Bronze.*—Trans. American Inst. of Metals Vol. IX; p 264; pp 9; 35c.

Lowell, F. L.—*Mines and Mineral Resources of Del Norte, Humboldt and Mendocino Counties, California.* [Reviews operations in detail, locates separate deposits and describes them].—Calif. Mg. Bur.; pp 59*.

Merica, Paul D.; Karr, C. P.—*The Initial Stress Produced by the Burning-In of Manganese Bronze.*—A. I. of Metals Adv. Paper No. 8; pp 8*; 35c.

Neal, Walter.—*The Manganese and Silver Problem.* [Notes on investigations made to find a satisfactory method for treating silver-manganese ores]. — Jnl. Chem., Met. & Mg. Soc. Aug. 1916; p 9; pp 9½; 35c.

O'Harra, C. C.—*The Manganese Market.* [Statistics of production in foreign countries and for different years in the United States are given, besides prices of ore, the ways in which it is sold and production of some of the foreign countries].—Pahasapa Dec. 1916; p 32; pp 4; 35c.

Ortega, Pablo.—*Boletin De Minas, Cuba.* [Reviews the operations and production of the mines, mostly in the prov-

ince of Pinar del Rio. The nature of the deposits and mines of the various companies are described. Several tables of statistics are given in the concluding pages].—Secretaria de Agricultura, Comercio y Minas, Bull. No. 1; pp 157*.

Runner, J. J.—*Geological Occurrence of Manganese.* [General description on the geology, mineralogy and occurrence of manganese in various parts of the world].—Pahasapa Dec. 1916; p 9; pp 10; 35c.

Scott, Herbert K.—*Manganese Ores of the Bukowina, Austria.* [A concise but complete description of the country, the ores, geology, methods of handling and preparing and costs of the same].—Iron & Steel Inst. Adv. Copy 5; pp 20*; 50c.; I. & C. Tr. Rev. Sept. 22 1916; p 342; pp 2¼*; 35c.; E. & M. J. Nov. 25 1916; p 935; pp 3; 25c.

Scott, Herbert K.—*Manganese Ores of Russia, India, Brazil and Chile.* [Discussion of a paper by E. C. Harder].—A. I. M. E. Bull. Dec. 1916; p 2222; pp 5½; 35c.

Singewald, Joseph T., Jr.; Miller, Benjamin.—*High-Grade Manganese Ores of Brazil.* [Excerpts from an article in Iron Age. A general description of the several deposits, mining and transportation costs and production are given].—Pan-American Union Bull. Nov. 1916; p 601; pp 5½*; 35c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Manganese Ores of the Lafayette District, Minas Geraes, Brazil.* [Separate descriptions on different districts and mines, also the nature of the ore and geology].—Bull. A. I. M. E. Oct. 1916; p 1745; pp 18*; 35c.

Smeeth, W. F.—*Annual Report for the Year* 1914. [Part I takes up production and general conditions of the industry, while Part II is more of a geologic nature on several of the districts in the *state.*]—Mysore Dept. of Mines and Geol.; pp 188*; $1.75.

Smeeth, W. F.; Iyengar, P. S.—*Mineral Resources of Mysore, India.* [A brief account of the more important economic minerals, their occurrence and distribution, with notes on their mining and metallurgical treatment and uses].—Mysore Dept. of Mines & Geol. Bull. 7; pp 193; $1.50.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* [Gives the results of tests made on steels containing small amounts of other metals, as copper, tin, silicon, phosphorus, sulphur, etc.].—Iron & Steel Inst. Adv. Copy; pp 91*; 50c.

Watkins, Joel H.—*Manganese in Tennessee.* [Describes the occurrence of the ores and geology of the formation].—E. & M. J. Sept. 23 1916; p 545; pp 1½*; 25c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

MOLYBDENUM

Andrews, E. C.—*Molybdenite: Its Occurrence and Treatment in New South Wales.* [Abst. from Bulletin No. 23 of the N. S. W. Department of Mines].—Mg. & Engg. Rev. Aug. 5 1916; p 286; pp 2½; 35c.

Ball, L. C.—*Wolfram, Molybdenite and Bismuth Mines of Bamford, North Queensland, Australia.*—Queen. Geol. Surv. Report.

Calkins, F. C.—*Molybdenite and Nickel Ore in San Diego County, California.* [Both ores are considered separately. The deposits to date are prospects, but worth future consideration].—U. S. G. S. Bull. 640-D; pp 10*.

DeLury, J. S.—*The Mineral Belt North of the Pas, Manitoba.* [Mostly on the geology and nature of the deposits and country formation].—Canadian Mg. Jul. Sept. 1 1916; p 412; pp 4*; 35c.

Dunstan, B.—*Queensland Mineral Deposits, Australia.* [Occurrence, production, values, prospects and properties by the chief Government Geologist].—Queen. Gov't Mg. Jnl. July 15 1916; p 314; pp 1¾; 35c.

Fahrenwald, Frank.—*The System Tungsten-Molybdenum.* [Treats on the metallography, physical characters and thermic properties of tungsten-molybdenum alloys].—Bull. A. I. M. E. June 1916; p 1049; pp 7*; 35c.

Fleck, Herman.—*A Treatise on Molybdenum.* [An account of its mineralogy and places of occurrence is followed by a description of general methods of concentrating and smelting the ores. Uses of the metal are given].—Colo. School of Mines Qt'ly July 1916; p 22; pp 11; 35c.; Mg. World Dec. 9 1916; p 994; pp 1¼; 10c.

Jeffries, Zay.—*Tungsten-Molybdenum Equilibrium Diagram and System of Crystallization.* [A method for the determination of the melting point of metals and alloys with high fusion points].—Bull. A. I. M. E. July 1916; p 1225; pp 12*; 35c.

Jones, Edward L., Jr.—*Reconnaissance of the Conconcully and Ruby Mining Districts, Washington.* [The first half is on the geology, geography and nature of the deposits. The last half is separate descriptions of mines and prospects].—U. S. G. S. Bull. 640-B; pp 26*.

Merrill, Frederick J. H.—*Geology and Mineral Resources of San Diego and Imperial Counties.* [Though gold is the principal metal mined, considerable is done in the non-metallic industry].—Calif. Mg. Bur.; pp 113*.

Robertson, A. J.—*Tungsten-Molybdenum Ore Concentration.* [Abst. of an article in a bulletin of the Geol. Surv. of West Australia].—E. & M. J. July 15 1916; p 126; pp 1¾; 25c.

Saint-Smith, E. C.—*Kangaroo Hill Mineral Field, North Queensland, Australia.* [Notes on several of the mines in this area].—Queens. Govt. Mg. Jnl. Nov. 15 1916; p 534; pp 5½*; 35c.

Westling, H.; Andersen, Carl.—*Analysis of Molybdenum Ores.* [A volumetric method employing lead acetate for titration and tannic acid as an indicator. The main object is to precipitate the molybdenum with hexavalency].—M. & S. P. Dec. 23 1916; p 917; pp 1½; 20c.

Worthing, A. G.—*Tungsten-Molybdenum Equilibrium Diagram and System of Crystallization.* [Discussion of a paper by Zay Jeffries].—A. I. M. E. Bull. Dec. 1916; p 2231; pp 1; 35c

——— *Great Britain, Special Reports on the Mineral Resources of.*—Geol. Surv. of England. Vols. III, IV, V.; $1.

——— *Metal Production of Ontario, First Half of* 1916.—Mg. World Oct. 7 1916; p 626; pp 1; 10c.

——— *Quebec Mining Industry—A Review for the First Half of* 1916. [Brief accounts of operations at various properties].—Canadian Mg. Inst. Bull. Sept. 1916; p 796; pp 4; 50c.

TITANIUM

Browning, P. E.; Simpson, G. S.; Porter, L. E.—*On the Qualitative Separation and Detection of Tellurium and Arsenic, Iron and Thallium, and Zirconium and Titanium.* [Details of procedure for this chemical method are given].—American Jnl. of Sci. Aug. 1916; p 106; pp 3; 60c.

Janssen, W. A.—*Use of Titanium in Steel Castings.* [A paper read before the Ameican Foundrymen's Assn. telling of some of the advantages of ferro-titanium as a deoxidizer].—I. Tr. Rev. Sept. 14 1916; p 507; pp 5*; 25c.

TUNGSTEN

Aichino, Giovanni.—*Tungsteno.* [On the concentration and treatment of tungsten ores].—Ind. Chim. Min. & Met. Sept. 10 1916; p 273; pp 5; 35c.

Ball, L. C.—*Wolfram Mines of Mount Carbine, North Queensland.*—Queen. Geol. Surv. Report.

Ball, L. C.—*Wolfram, Molybdenite and Bismuth Mines of Bamford, North Queensland, Australia.*—Queen. Geol. Surv. Report.

De Wolf, William P.—*Yavapai County, Arizona, Mines and Mills.* [A general review of current conditions, with some detailed information].—Mg. World Sept. 16 1916; p 503; pp 1¼; 10c.

Fahrenwald, Frank A.—*The System Tungsten-Molybdenum.* [Treats on the metallography, physical characters and thermic properties of tungsten-molybdenum alloys].—Bull. A. I. M. E. June 1916; p 1049; pp 7*; 35c.

Grossberg, Alexander.—*Separating Wolframite from Tin in Bolivia.* [Details of the operations are given].—E. & M. J. July 15 1916; p 139; pp ¾; 25c.

Gudgeon, C. W.—*The Scheelite Gold Mines of Otaga, New Zealand.* [Several properties are described. In each the ore body, milling process and milling and mining costs are dealt with].—Proc. Aus. Inst. M. E. No. 21 1916; p 37; pp 14*; 65c.; M. & S. P. July 22 1916; p 136; pp 1*; 20c.; E. & M. J. Aug. 19 1916; p 346; pp 2*; 25c.

Hartman, M. L.—*Chemistry and Metallurgy of Tungsten.* [From the Pahasapa Quarterly. Several gravimetric chemical methods for the quantitative analysis of the metal are given].—Mg. World July 8 1916; p 55; pp 1½; 10c.

Hess, Frank L.—*Tungsten Production During First Six Months of* 1916. [A report of the U. S. G. S.].—Chem. Eng. & Mfg. Nov. 1916; p 232; pp 1; 30c.; Mg. World Aug. 5 1916; p 247; pp 2*; 10c.

Jeffries, Zay.—*Tungsten-Molybdenum Equilibrium Diagram and System of Crystallization.* [A method for the determination of the melting point of metals and alloys with high fusion points].—Bull. A. I. M. E. July 1916; p 1225; pp 12*; 35c.

Jimenez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150.

Leslie, E. H.—*Tungsten in the Boulder District, Colorado.* [Speaks considerable

of milling practice].—M. & S. P. Sept. 2 1916; p 353; pp 3*; 20c.

Nevius, N. J.—*Notes on the Randsburg Tungsten District, California.* [The geology of the placer deposits and general conditions in operating in the district are reviewed].—Mg. World July 1 1916; p 7; pp 1¼; 10c.

Robertson, A. J.—*Tungsten-Molybdenum Ore Concentration.* [Abst. of an article in a bulletin of the Geol. Surv. of West Australia].—E. & M. J. July 15 1916; p 126; pp 1¾; 25c.

Runner, J. J.—*Specific Gravity Method for Tungsten Analysis.* [Curves for use in this connection are reproduced].—M. & S. P. July 1 1916; p 11; pp 2¾*; 20c.

Saint-Smith, E. C.—*Kangaroo Hill Mineral Field, North Queensland, Australia.* [Notes on several of the mines in this area].—Queens. Govt. Mg. Jnl. Nov. 15 1916; p 534; pp 5½*; 35c.

Saint-Smith, Cecil E.—*Robson's Lodes of Wolfram, Tin, Etc., Tinaroo, North Queensland.* [An account of exploring operations and the geology and occurrence of the minerals].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 368; pp 1½*; 35c.

Scott, W. A.—*Concentrating Tungsten Ores, Boulder County, Colorado.* [On milling methods and equipment in several of the more important plants of the district].—Mg. World Oct. 21 1916; p 697; pp 4¼*; 10c.

Scott, W. A.—*Mining Operations at Johnston, Arizona.* [Reviews the operations of the tungsten and copper companies of the district].—Mg. World July 22 1916; p 141; pp 3*; 10c.

Scott, W. A.—*Operations in the Tintic District, Utah.* [Describes the district and its operations in general, and then gives separate descriptions of the operations and methods of some of the companies].—Mg. World Sept. 30 1916; p 583; pp 1¾; 10c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Mining Industry of Bolivia.* [A general description, with some details of the people, geography of the country and operation and production of the mines].—E. & M. J. Dec. 9 1916; p 1008; pp 5*; 25c.

Wagner, P. A.—*Economic Geology and Mineral Industry of Southwest Africa.*—S. Afr. Mg. Jnl. July 1 1916; p 311; pp 1; 35c.

Wolf, H. J.; Barbour, P. P.—*The Boulder County Tungsten District, Colorado.* [Reviews the operations and conditions in the district. The principal companies are named, milling practice is described and a schedule of prices for tungsten ore is given].—E. & M. J. July 22 1916; p 165; pp 4¼*; 25c.

Worthing, A. G.—*Tungsten-Molybdenum Eqilibrium Diagram and System of Crystallization.* [Discussion of a paper by Zay Jeffries].—A. I. M. E. Bull. Dec. 1916; p 2231; pp 1; 35c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *New South Wales Department of Mines: Annual Report for* 1915. [A general review of mine operations and activities during the year].—N. S. W. Dept. of Mines, Sydney.

URANIUM

Turner, W. A.—*The Separation of Vanadium from Phosphoric and Arsenic Acid and from Uranium.* [A description of a chemical method].—American Jnl. of Sci. Aug. 1916; p 109; pp 2; 60c.

VANADIUM

Clark, W. W.—*The Manufacture and Use of Alumino Vanadium.* [On the alloys of these two metals].—Trans. American Inst. of Metals Vol. IX; p 159; pp 8; 35c.

Fischer, Sigfried, Jr. — *Contributions to the Knowledge of the Electrolysis Agueous Solution of Vanadium Salts.* [Gives the results of previous investigations showing the behavior of vanadium and its salts under various conditions, especially in solution as an electrolyte].—American Electrochem. Soc. Adv. Paper 9; p 119; pp 45*; 35c.

Grider, R. L.—*Concentration and Smelting of Vanadium Ore.* [A flow sheet and description, with results obtained from lead-vanadate ores in New Mexico].—M. & S. P. Sept. 9 1916; p 389; pp 2½*; 20c.

Kelley, G. L.; Conant, J. B.—*Determination of Chromium and Vanadium in Steel by Electrometric Titration.*—Jnl. Ind. Eng. Chem, 1916; No. 8; p 719; pp 5.

Kelley, G. L.; Conant, J. B.—*Electrometric Titration of Vanadium.* [The titration is made with ferrous sulphate on an acid solution containing the vanadium as a vanadate].—Jnl. Amer. Chem. Soc. No. 38; 1916; p 341; pp 11.

Kelley, G. L.; Conant, J. B.—*The Determination of Chromium and Vanadium in Steel by Electrometric Titration.*—Jnl

Ind. & Engg. Chem. Aug. 1916; p 719; pp 4¼; 60c.

Peters, Franz.—*Die Elektrometallurgie der weniger häufigen Metalle in den Jahre* 1906 *to* 1915. [On the electrometallurgy of some of the more common metals from 1906 to 1915].—Glückauf Oct. 1 1916; p 836; pp 6½; 50c.

Singewald, Joseph E.; Miller, Benjamin L.—*Prominent Mines of Junin, Peru.* [Three mines in the same district are described as regards their ore deposits. One is vanadium, one bismuth and the last silver].—E. & M. J. Sept. 30 1916; p 583; pp 4¼*; 25c.

Turner, W. A.—*The Separation of Vanadium from Phosphoric and Arsenic Acid and from Uranium.* [A description of a chemical method].—American Jnl. of Sci. Aug. 1916; p 109; pp 2; 60c.

CHAPTER VII.

Tin, Nickel, Cobalt, Aluminum.

TIN

Bancroft, Holland.—*The Bolivian Tin Industry.* [A paper read before the Pan-American Sci. Congress. Reviews the market conditions, production and prices, with information on methods of mining, milling and smelting].—M. & S. P. July 22 1916; p 119; pp 7*; 20c.

Broniewski, M. Witold.—*Zur la Scructure des Alliages Cuivre-Zinc at Cuivre-Etain.* [A metallographic study on copper-zinc and copper-tin alloys].—Metallurgie French Nov. 1915; p 961; pp 29*; 50c.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Campbell, William.—*Recent Progress in Metallography.* [With some description the greater part is a bibliography of literature].—Amer. Inst. of Metals Adv. Copy 17; pp 63; 35c.

Dunlop, J. P.—*Secondary Metals in* 1915. [On the production of metals refined from scrap].—Min. Res. U. S. I:3; pp 8.

Grossberg, Alexander.—*Separating Wolframite from Tin in Bolivia.* [Details of the operations are given].—E. & M. J. July 15 1916; p 139; pp ¾; 25c.

Hallett, R. L.—*The Volumetric Determination of Tin.* [Discusses different volumetric methods, pointing out the advantages and disadvantages of each].—Jnl. Soc. Chem. Ind. Nov. 15 1916; p 1087; pp 3; 75c.

Hoyt, Samuel L.—*Notes on the Copper-Rich Kalchoids.* [Speaks of the different copper-tin-zinc-alloys]. — Trans. American Inst. of Metals Vol. IX; p 83; pp 14*; 35c.

Hoyt, S. L.—*The Ternary Alloys of Copper, Tin and Zinc—the Kalchoids.* [A review of the properties].—Trans. American Inst. of Metals Vol. IX; p 364; pp 31*; 35c.

Knopf, Adolph.—*Tin Ore in Northern Lander County, Nevada.* [The district is virgin and the mineralogy, geology and genesis of the ores are described].—U. S. G. S. Bull. 640-G; pp 14*.

Lamb, M. R.—*Amenities of Bolivian Mining.* [A general review of the mining industry in the country which is for tin. The altitude is 13,000 ft.].—E. & M. J. July 8 1916; p 81; pp 3½*; 25c.

Matheson, A. M.—*Notes on the Chemical Assay of Tin Ores.* [Discussion of the chemical and fire assay of pyritic tin ores show that mill losses cannot be estimated by vanning and the fire method].—Proc. Aus. Inst. M. E. No. 21 1916; p 1; pp 7; 65c.; Mg. World Sept 9 1916; p 451; pp 2¼; 10c.; Mg. & Engg. Rev. June 5 1916; p 221; pp 2½; 35c.

Miller, Benjamin L.; Singewald, Joseph T., Jr.—*The Patino Tin Mines, Bolivia.* [A description of the properties owned by Patino in Bolivia, including the mode of occurrence, methods of operation and geology of the formation].—E. & M. J. Sept. 9 1916; p 451; pp 4¼*; 25c.

Miller, Benjamin L.; Singewald, Joseph T., Jr.—*The Huayni-Potosi Bismuth-Tin Mines in Bolivia.* [Other minerals occur, though these are the principal ones. Mining, milling and operations and conditions in the district in general are reviewed].—E. & M. J. Dec. 16 1916; p 1065; pp 3*; 25c.

Payne, F. W.—*Dredging for Minerals: Past and Present.* [From the Mining & Engineering Review, dealing with the operation of various dredging projects of both the past and present in New Zealand, Australia, and the Malay States].—Mg. World Dec. 16 1916; p 1029; pp 1½; 10c.

Reid, J. H.—*Sundown Tin and Copper Mine, Ballandean, Queensland, Australia.* [On the geology of the deposit, working of the mine and concentrating of the ores].—Queen. Govt. Mg. Jnl. June 15 1916; p 260; pp 1¾*; 35c.

Reid, J. H.—*The Comet Mine, Sundown, Ballandean, Queensland, Australia.* [A geological description of the ore deposits and ore].—Queen. Govt. Mg. Jnl. June 15 1916; p 258; pp 2*; 35c.

Saint-Smith, E. C. — *Malvern Tin Mine, Gurrumbah, North Queensland.* [A description of the property, its operation and mode of occurrence of the ores].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 367; pp 2*; 35c.

Saint-Smith, E. C. — *Robson's Lodes of Wolfram, Tin, Etc., Tinaroo, North Queensland.* [An account of exploring operations and the geology and occur-

rence of the minerals].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 368; pp 1½*; 35c.

Saint-Smith, E. C.—*Kangaroo Hill Mineral Field, North Queensland, Australia.* [Notes on several of the mines in this area].—Queens. Govt. Mg. Jnl. Nov. 15 1916; p 534; pp 5½*; 35c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*Silver-Tin Mining in Bolivia.* [Old stope filling is being taken out, chloridized, leached and then concentrated for the tin residue].—E. & M. J. Sept. 23 1916; p 533; pp 3*; 25c.

Singewald, Joseph T., Jr.; Miller, Benjamin.—*The Mining Industry of Bolivia.* [A general description, with some details of the people, geography of the country and operation and production of the mines].—E. & M. J. Dec. 9 1916; p 1005; pp 5*; 25c.

Sohnlein, M. G. F.—*Combination Pulp Classifier.* [A paper to be read before the A. I. M. E. The machine was designed because neither mechanical nor hydraulic classification of tin ores in Bolivia were satisfactory].—E. & M. J. July 22 1916; p 182; pp 1*; 25c.

Stannard, O. J.—*Chemical Methods of Extraction.* [Deals with the chemistry and brief description of thermic, electro and hydro metallurgical processes. A discussion of costs is also given].—Mg. Mag. July 1916; p 15; pp 5; 50c.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* [Gives the results of tests made on steels containing small amounts of other metals, as copper, tin, silicon, phosphorus, sulphur, etc.].—Iron & Steel Inst. Adv. Copy; pp 91*; 50c.; I. & C. Tr. Rev. Sept. 22 1916; p 350; pp 2⅛*; 35c.

Wagner, P. A.—*Economic Geology and Mineral Industry of Southwest Africa.*—S. Afr. Mg. Jnl. July 1 1916; p 311; pp 1; 35c.

——— *New South Wales in* 1915. [Reviews the production of metals in the country].—Mg. Jnl. Sept. 2 1916; p 596; pp 2; 35c.

——— *Rooiberg Tin Dressing Plant.* [A reproduction of the plant's flowsheet].—S. Afr. Mg. Jnl. July 1 1916; p 309; pp 1*; 35c.

——— *Tin Smelting Capacity of the World.* [Gives the possible production of tin from different companies' plants and from different districts].—Mg. Jnl. Sept. 23 1916; p 645; pp 1½; 35c.

——— *Union Tin Mining Progress.* [On production and general condition of the industry in South African fields].—S. Afr. Mg. Jnl. Sept. 16 1916; p 55; pp 1; 35c.

NICKEL

Calkins, F. C.—*Molybdenite and Nickel Ore in San Diego County, California.* [Both ores are considered separately. The deposits to date are prospects, but worth future consideration].—U. S. G. S. Bull. 640-D; pp 10*.

Coleman, A. P.—*Chief Minerals of the Sudbury Nickel Ores.* [The location and nature of the particular minerals found in the field].—Canadian Mg. Jnl. Aug. 15 1916; p 388; pp 1¾; 35c.

Covitz, Philip.—*The Determination of Nickel in Iron Ores.* [A gravimetric chemical method for use with complex ores in which precipitation is brought about by the addition of ammonium hydroxide and dimethyl glyoxime].—Met. & Chem. Engg. Dec. 15 1916; p 682; pp 1¼; 35c.

Figueroa, T.; Carbonell, A.—*Notas Sobre Los Yacimientos Bismutiferos de Azuel, Cordoba, Spain.* [Notes on the nature and production of a bismuth ore in Spain].—Revista Minera Oct. 16 1916; p 491; pp 2; 35c.

Foye, W. G.—*The Relation of Titaniferous Magnetite Ores of Glamorgan Township, Haliburton County, Ontario, to the Associated Scapolitic Gabbros.* [Details of mineralogy, lithology and genesis of the deposits is given].—Eco. Geol. Nov. 1916; p 662; pp 18*; 35c.

Guess, G. A.; Lathe, F. E.—*An Investigation Into the Flowing Temperatures of Copper Mattes and of Copper-Nickel Mattes.* [A number of tests and investigations to determine the temperature at which the two mattes will flow].—Bull. A. I. M. E. June 1916; p 1067; pp 6*; 35c.

Hammond, L. D.—*The Electrodeposition of Nickel.* [Tables and description showing the chemicals used in different electrolytes are given with the current used in deposition and all the information given is specific rather than general].—American Electrochem. Soc. Adv. Paper 12; p 201; pp 29; 35c.

Kelley, G. L.; Conant, J. B.—*The Use of Diphenyl Glyoxime as an Indicator in the Volumetric Determination of Nickel by Frevert's Method.* [Gives a description of procedure for the method and the use of the indicator].—Jnl. Ind. & Engg. Chem. Sept. 1916; p 804; pp 3; 60c.

Knight, Cyril W.—*Geological Relations of Sudbury Nickel Ores.* [Reviews the nature of the deposits and geology of the related formation. The whole is in the

form of discussion].—E. & M. J. Sept. 23 1916; pp 1¾*; 25c.

Leonard, R. W.—*Nickel Refining in Canada.* [A general review of the industry].—Canadian Mg. Inst. Bull. Sept. 1916; p 758; pp 2; 50c.

Lotti, Alfredo.—*Notizie Complementari sulla Metallurgia del Nickel in America.* [Notes on the metallurgy of nickel in America].—Metallurgica Ital. July 15 1916; p 429; pp 4; $1.

McFarland, David F.; Harder, Oscar E.—*The Alloys of Chromium, Copper and Nickel.* [Treats on the composition, properties, etc., of different mixtures making this alloy].—Trans. American Inst. of Metals Vol. IX; p 119; pp 26*; 35c.

Parodi, Lorenzo.—*Notizie Sulla Metallurgia del Nickel Importanza del Nickel nell'odierna Metallurgia.* [Notes on the metallurgy of nickel today. Deals with the situation and methods employed in the principal producing countries].—Metallurgia Ital. May 31 1916; p 355; pp 14; $1.

Parodi, Lorenzo.—*Ricordi e Note Sulla Metallurgia Italiana.* [A record of the metallurgical production of metals in Italy during 1914 and 1915].—Metallurgia Ital. April 30 1916; p 260; pp 15; $1.

Parr, S. W.; McFarland, D. F.—*The Analysis of Complex Alloys of Chromium, Copper, Nickel Type.*—Trans. American Inst. of Metals Vol. IX; p 218; pp 6; 35c.

Parsons, L. A.—*Diamond Drilling at Sudbury, Ontario.* [Details of operation and costs].—E. & M. J. Aug. 26 1916; p 381; pp 1¾; 25c.

Payne, F. W.—*Dredging for Minerals.* [Deals with the past and present operation of dredges by different companies pointing out causes for their failure and success].—Mg. & Engg. Rev. Oct. 5 1916; p 17; pp 1¾; 35c.

Stead, J. E.—*Notes on Nickel Steel Scale and on the Reduction of Solid Nickel and Copper Oxides by Solid Iron.* [Gives the method of procedure and results obtained in experimental work].—Iron & Steel Inst. Adv. Copy 7A; pp 9*; 50c.

Wilson, A. W. G.—*On the Possibility of Producing Refined Copper in Canada.* [Published by permission of the Mines Branch, Ottawa, Ont. The deposits, reserves and refining of copper in Canada are discussed].—Canadian Mg. Jnl. Nov. 15 1916; p 529; pp 6½; 35c.

——— *Metal Production of Ontario, First Half of* 1916.—Mg. World Oct. 7 1916; p 626; pp 1; 10c.

——— *Occurrence of Nickel Ores.* [Extracts from an article in the bulletin of the Imperial Inst., London].—Canadian Mg. Jnl. Oct. 15 1916; p 494; pp 3¼; 35c.

——— *Ontario's Metal Production.* [From the Canadian Bureau of Mines report].—Canadian Mg. Jnl. Dec. 1 1916; p 555; pp 1¼; 35c.

——— *Origin of the Sudbury Nickel-Copper Ores.*—Canadian Mg. Jnl. Aug. 15 1916; p 390; pp 1*; 35c.

——— *Recent Developments in the Sudbury District, Ontario.*—Canadian Mg. Jnl. Aug. 15 1916; p 391; pp 1¾*; 35c.

——— *The Occurrence and Uses of Nickel Ores.* [Canada, New Caledonia and Norway are the principal countries reviewed as regards production, occurrence, etc.].—Bull. Imp. Inst., E. C., 1916 No. 14; p 228; pp 26.

COBALT.

Engle, W. D.; Gustavson, R. G.—*New Volumetric Method for the Determination of Cobalt.* [The method permits of the presence of zinc, cobalt, etc.].—Jnl. Ind. & Engg. Chem. Oct. 1916; p 901; pp 1¼; 60c.

Haynes, Elwood.—*Stellite.* [An alloy of cobalt and chromium principally].—Trans. American Inst. of Metals Vol. IX; p 333; pp 3; 35c.

Kalmus, Herbert T.; Blake, K. B.—*Magnetic Properties of Cobalt and Cobalt-Iron Alloy.* [Describes a number of tests].—Canada Dept. of Mines No. 413; pp 18*.

——— *Metal Production of Ontario, First Half of* 1916.—Mg. World Oct. 7 1916; p 626; pp 1; 10c.

ALUMINUM

Arnou, G.; Portevin, A.—*Le Traitment Thermique du Bronze D'Aluminium a 10% D'Aluminium.* [On the thermic treatment and properties of bronze containing 10% aluminum].—Metallurgie, French April 1916; p 101; pp 15*; 75c.

Blum, William.—*Determination of Aluminum as Oxide.* [A general review of methods is made and followed by a complete description of this method, with the results obtained by its use].—U. S. Bur. of Stand. Sci Paper 286; pp 20*; 20c.

Browning, P. E.; Spencer, S. R.—*On the Separation of Caesium and Rubidium by the Fractional Crystallization of the Aluminum and Iron Alums and Its Application to the Extraction of These Ele-*

ments from Their Mineral Sources.—American Jnl. of Sci. Sept. 1916; p 2½; 35c.

Campbell, William.—*Recent Progress in Metallography.* [With some description the greater part is a bibliography of literature].—Amer. Inst. of Metals Adv. Copy 17; pp 63; 35c.

Clennell, J. E..—*Estimating Metallic Aluminum in Aluminus Dust.* [Deals mostly with gasometric methods].—E. & M. J. Aug. 12 1916; p 309; pp 1½; 25c.

Clark, W. W.—*The Manufacture and Use of Alumino Vanadium.* [On the alloys of these two metals].—Trans. American Inst. of Metals Vol. IX; p 159; pp 8*; 35c.

Comstock, George F.—*The Presence of Alumina in Steel.* [A paper read before the American Foundrymen's Assn. This paper points out that alumina may be distinguished from non-metallic inclusions and shows how it may be distinguished].—I. Tr. Rev. Sept. 21 1916; p 563; pp 5*; 25c. Iron Age Sept. 14; p 582; pp 2¾*; 30c.

Corse, W. M.—*Aluminum Bronze Alloys.* [A current review of the nature of the several alloys].—Trans. American Inst. of Metals Vol. IX; p 194; pp 11*; 35c.

Corse, W. M.; Comstock, G. F.—*Some Copper-Aluminum-Iron Alloys* [Deals with the physical properties and nature of the alloy. A metallographic review of the alloys and the results of physical tests are given].—American Inst. of Metals Adv. Paper 14; pp 16*; 35c.

Corse, W. M.; Comstock, G. F.—*Tests of Aluminum Bronze.* [Abst. from a paper read before the American Soc. for Testing Materials. Curves are shown and it is stated that a double heat treatment increases the resistance to alternating stresses].—Iron Age July 13 1916; p 80; pp 1¼*; 30c.

Dunlop, J. P.—*Secondary Metals in* 1915. [On the production of metals refined from scrap].—Min. Res. U. S. I:3; pp 8.

Dunstan, B.—*Queensland Mineral Deposits.* [Aluminum, its deposits, production, occurrence and uses of the metal and its derivatives and ores are among the things reviewed].—Queen. Govt. Mg. Jnl. Oct. 14 1916; p 475; pp 3½; 35c.

Gillett, H. W.; James, G. M.—*Melting Aluminum Chips.* [Tests and methods of smelting, particularly in the electric furnace. Methods of testing and practical methods of procedure are given].—U. S. Bur. of Mines Bull. 108; pp 88; 20c.

Henrich, Carl. — *The Function of Alumina in Slags.*—Bull. A. I. M. E. Nov. 1916; p 2081; pp 6; 35c.

June, Robert. — *Insuluminum.* [Tests and description of a new ferro-aluminum alloy with great heat resisting properties].—Pract. Eng. Nov. 1 1916; p 924; pp 2*; 20c.

McKinney, P. E.—*Aluminum Castings and Forgings.*—A. I. of Metals Adv. Paper No. 15; pp 8; 35c.

Pack, Charles.—*Aluminum Die Casting a Commercial Achievement.* [Detailed information on methods of casting aluminum].—Trans. American Inst. of Metals Vol. IX; p 144; pp 14*; 35c.

Pannell, Ernest V.—*Recent Developments in Aluminum.* [A number of recently found properties, both thermic and electrical].—Trans. American Inst. of Metals Vol. IX; pp 167; pp 27*; 35c.

Phalen, W. C.—*Bauxite and Aluminum in* 1915. [On the production, uses and methods of refining].—Min. Res. of U. S. I:7; pp 16*.

Pilgrim, Earl R.—*Flotation Tests on an Antimony Gold Ore.* [Tests conducted at the Washington College of Mines].—E. & M. J. Nov. 4 1916; p 820; pp ¾; 25c.

Sauveur, Albert.—*Detecting Alumina Inclusions in Steel.* [A microscopic investigation as to the occurrence and appearance of alumina particles].—Iron Age July 27 1916; p. 180; pp 2*; 30c, I. Tr. Rev. July 27; p 179; pp 2*; 25c.

Schirmeister, H.—*The Binary Alloys of Aluminum.* [The influence of the 20 most important metals on aluminum].—Stahl & Eisen 1916; No. 35; p 648, 873 and 996; $1.05.

Sidener, C. F.; Pettijohn, Earl.—*Notes on the Determination of Aluminum.* [A discussion on the determination of aluminum as an oxide being precipitated with ammonium hydroxide].—Jnl. Ind. & Engg. Chem. Aug. 1916; p 714; pp 2; 60c.

Stone, G. S.—*Spelter: Its Grades and Uses.* [Tells of impurities, the amounts allowable in different grades and their effect on spelter's properties].—Mg. World Aug. 12 1916; p 287; pp 1½; 10c.

Strong, William.—*Electro-Metallurgical Uses of Surplus Power.* [On the possible uses to which the excess hydro-electric power of our western states might be put].—Jnl. Elect. Power & Gas July 15 1916; p 43; pp 3*; 35c.

——— *Aluminum.* [On the production and conditions of the trade, with some information on the refining of the metal].—Engg. July 7 1916; p 9; pp 1; 35c.

CHAPTER VIII.

Miscellaneous Metals and Ores.

MERCURY

Bradley, W. W.—*Concentration Methods for the Reduction of Quicksilver Ores.* [Work now being carried on by the California Mining Bureau].—Mg. World Aug. 26 1916; p 366; pp ¾; 10c.

Broderick, T. M.—*Some Experiments Bearing on the Secondary Enrichment of Mercury Deposits.* [Deals mostly with the geochemistry of this process of genesis].—Eco. Geol. Nov. 1916; p 645; pp 7; 60c.

Brown, G. Chester.—*Mines and Mineral Resources of Shasta, Siskiyou and Trinity Counties, California.* [Copper and gold are the principal minerals, though many others occur in the district].—Calif. g. Bur.; pp 192*.

Eakin, H. M.; Mertie, J. B.; Harrington, G. L.—*The Cosna-Nowitna and Ruby-Kuskokwim Regions, Alaska.* [The geology, geography and mineral resources of the country are first reviewed and followed by separate descriptions of the districts].—U. S. G. S. Bull. 642-H; pp 56*.

Jimenez, Carlos P.—*Estadistica Minera en 1914, Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150*.

Landers, W. H.—*The Smelting of Mercury Ores.* [Speaks of the general thermic methods now in common use and mentions the open field here for hydrometallurgical methods and investigation]. E. & M. J. Oct. 7 1916; p 630; pp 5*; 25c.

McCaskey, H. D.—*Quicksilver in 1915.* [Report by states and the United States on the production of the metal and market conditions].—Min. Res. of U. S. I:11; pp 19.

McLaughlin, R. P.; Bradley, Walter C.; Brown, G. Chester; Lowell, F. L.—*Mines and Mineral Resources of Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin and Stanislaus Counties, California.* [Operations are included in separately, describing mines, plants and unworked deposits].—Calif. Mg. Bur.; pp 220*.

Mudd, S. W.—*Mining and Metallurgical Progress in the Southwest.* [Address delivered before the Chamber of Mines and Oil, Los Angeles, being on the production of ores and metals].—Mg. World July 1 1916; p 11; pp 2; 10c.

——— *California Mineral Production.* —E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

——— *Chinese Mineral Industry in 1915.* [A review of the production of refined metals].—July 8 1916; p 477; ¾; 35c.

——— *Oceanic Quicksilver Mill, California.* [An account of equipment and operations].—E. & M. J. Sept. 16 1916; p 512; pp 1*; 25c.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 29; pp 8¼*; 10c.

RADIUM AND RADIOACTIVES

Leaming, T. H.; Schlundt, Herman; Underwood, Julius.—*Comparison of the Ionization Currents Due to Equal Quantities of Radium Emanation in Different Types of Electroscopes.* [A method by which small quantities of radium may be determined]. — American Electrochem. Soc. Adv. Paper 2; p 13; pp 14; 35c.

Loomis, Albert G.; Schlundt, Herman. —*Some Experiments on the Concentration of Radium in Carnotite Ores.* [A general description of processes with details.]—Jnl. Ind. & Engg. Chem. Nov. 1916; p 990; pp 6; 60c.

THORIUM

Thornton, W. M., Jr.—*The Separation of Thorium from Iron with the Aid of the Ammonium Salt of Nitrosophenylhydroxylamine.*—American Jnl. of Sci. Aug. 1916; p 151; pp 4*; 60c.

MISCELLANEOUS ORES AND METALS (Unclassified)

Blackwelder, Eliot.—*The Geologic Role of Phosphorus.* [Treats on the action of phosphorus in solution with respect to the formation of minerals and other substances in a general way].—American Jnl. of Sci. Oct. 1916; p 285; pp 14*; 60c.

Browning, P. E.; Simpson, G. S.; Porter, L. E.—*On the Qualitative Separation and Detection of Tellurium and Arsenic, Iron and Thallium, and Zirconium and Titanium.* [Details of procedure for this

chemical method are given].—American Jnl. of Sci. Aug. 1916; p 106; pp 3; 60c.

Browning, P. E.; Spencer, S. R.—*On the Separation of Caesium and Rubidium by the Fractional Crystallization of the Aluminum and Iron Alums and Its Application to the Extraction of These Elements from Their Mineral Sources.*—American Jnl. of Sci. Sept. 1916; p 2½; 35c.

Dunlop, J. P.—*Secondary Metals in* 1915. [On the production of metals refined from scrap].—Min. Res. U. S. I:3; pp 8.

Hess, Frank L.—*Magnesium in* 1915. [Though production figures are given the greater part is on the manufacture, prices, uses, history of the method of manufacture, imports and exports].—Min. Res. U. S. I:23; pp 7.

Hill, James M.—*Barytes and Strontium in* 1915. [Reviews by states and inclusion of a map showing location of deposits].—Min. Res. of U. S. II:15; pp 27.

Irvin, Donald F.—*Strontium Nitrate: A New Industry.* [A flow sheet used for the refining of celestite to this product is given, besides a general review of the industry].—M. & S. P. Nov. 25 1916; p 774; pp 2¾*; 20c.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [The effects of several different elements on iron are treated separately].—Met. & Chem. Engg. Nov. 15 1916; p 588; pp 8*; 35c.

Richards, J. W.—*The Metallurgy of the Rarer Metals.* [Abst. from a paper read before the American Inst. of Chem. Eng. Discussing the importance of the future of magnesium, chromium and other metals].—Mg. World July 15 1916; p 93; pp 1¼; 10c.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* [Gives the results of tests made on steels containing small amounts of other metals as copper, tin, silicon, phosphorus, sulphur, etc.].—Iron & Steel Inst. Adv. Copy; pp 91*; 50c; I. & C. Tr. Rev. Sept. 22 1916; p. 350; pp 2⅛*; 35c.

Turner, W. A.—*The Separation of Vanadium from Phosphoric and Arsenic Acid and from Uranium.* [A description of a chemical method].—American Jnl. of Sci. Aug. 1916; p 109; pp 2; 60c.

Uhler, Horace S.; Browning, Philip E. —*On the Electrolysis and Purification of Gallium.* [Details of procedure are given].—Amer. Jnl. of Sci. Nov. 1916; p 389; pp 10*; 60c.

Wells, Arthur E.—*Laboratory Investigations Concerning the Reduction of Barium Sulphate to Barium Sulphide.* [Published by permission of the Bureau of Mines. Details of methods used in the investigation are given, with results obtained].—Jnl. Ind. & Engg. Chem. Sept. 1916; p 770; pp 7½*; 60c.

——— *Great Britain, Special Reports on the Mineral Resources of.*—Geol. Surv. of England. Vols. III, IV, V; $1.

NON-METALS.

CHAPTER IX.

Fuels and By-Products.

COAL

Coal Fields and Mining

Atkinson, H. J.—*Widening of the Upcast Shaft at Tinsley Park Colliery, England.* [A paper read before the Midland Inst. of Mg., Civil and Mech. Eng.].—I. & C. Tr. Rev. Oct. 6 1916; p 424; pp 1⅛*. 35c. Coll'y Guard Oct. 6; p 651; pp 1*; 35c.

Blakeley, A. G.—*Chemistry in Coal Mining.* [Some details and speaks of lines along which the coal mine chemist could work].—Coal Age Aug. 19 1916; p 296; pp 6½; 20c.

Boulton, W. S.—*Study of Concealed Coal Beds.* [The presidential address to the British Assn. for the Advancement of Sci.].—Coal Tr. Bull. Nov. 1 1916; p 43; pp 4½; 25c.

Brennan, Thomas.—*Good Results Obtained in the Pittsburgh Seam.* [A system of room and pillar mining in western Pennsylvania. Points on track laying and mining costs are also given].—Coal Age Dec. 23 1916; p 1038; pp 2; 20c.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Cady, Gilbert H.—*Coal Resources of District VI, Illinois.* [Describes the coals and formation of the district].—Ills. Geol. Surv. Bull. 15; pp 94*.

Cameron, W. E.—*The Ipswich Coal Field, Queensland.*—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 371; pp 1*; 35c.

Campbell, F. W.—*Working Over an Old Mine.* [A system being used by the Nay Aug Coal Co., Dunmore, Pa., by which it is mining ground mined and partially robbed already].—Coal Age Dec. 2 1916; p 924; pp 1¾*; 20c.

Crankshaw, H. M.—*Mining and Ventilation Methods in Thick Pitching Beds.* [A paper to be read at the A. I. M. E. Arizona meeting].—Coal Tr. Bull. Aug. 15 1916; p 23; pp 5*; 25c.

Crankshaw, H. M.—*Methods of Mining in the Anthracite Field.* [Deals with methods of timbering and running haulage and gangway, etc.].—Coal Age Oct. 7 1916; p 570; pp 5¾*; 20c.

Crankshaw, H. M.—*Methods of Mining in the Anthracite Field.* [Details in description and drawings show the methods used in mining operations].—Coal Age Sept. 23 1916; p 490; pp 3½*; 20c.

Crankshaw, H. M.—*Methods of Mining in the Anthracite Field.* [The formation here is more thin and more nearly flat than in the other fields and mining machines and slushing here find a better application].—Coal Age Sept. 30 1916; p 530; pp 4*; 20c.

Crankshaw, H. M.—*Mining Methods Employed in the Anthracite Field.* [A description of the stratigraphy and details of methods of underground operation and mining].—Coal Age Sept. 16 1916; p 452; pp 4*; 20c.

Crankshaw, H. M.—*Modern Methods of Mining and Ventilating Thick Pitching Beds.* [Confined to coal deposits. Details and drawings of the methods are shown].—Bull. A. I. M. E. July 1916; p 1159; pp 11*; 35c.

Crawford, C. W.—*The Calamity Trail —Mine Pumps.* [A discussion of faulty and correct installations and operations].—Coal Age Aug. 12 1916; p 266; pp 1½; 20c.

Davies, R. S.—*Hydraulic Packing at Ballarpur Colliery, India.* [Costs and details of operation are given].—Trans. Mg. & Geol. Inst. of India; Sept. 1916; p 53; pp 10; $1.25; Coll'y Guard. Nov. 3 1916; p 856; pp 1*; 35c.

DeWolfe, E. C.—*A modern Coal Mining Organization in Illinois.* [From Electrical Mining. The equipment, operation and methods of managing at the Madison Coal Corporation's mines are reviewed].—C. Tr. Bull. Aug. 1 1916; p 43; pp 8*; 25c.

Dominian Leon. — *Fuel in Turkey.* [Coal and petroleum are reviewed separately by the places in which they occur. The production, location and nature of the deposits are given].—Bull. A. I. M. E. June 1916; p 1011; pp 20*; 35c.

Frood, G. E. B.—*South African Mining in* 1915. [Deals entirely with coal mining, production, accidents, timbering,

sanitation and stone dusting].—Coll'y Guard. Nov. 10 1916; p 905; pp 1; 35c.

Futers, T. Campbell.—*The Mechanical Equipment of Cwm Colliery, Llantwit Fardre, South Wales.* [The hoist, shaft, steam and electric equipment at the mines are described].—Coll'y Guard. Dec. 1 1916; p 1055; pp 3*; 35c.

Heal, C.—*Colliery Pumping Plants.* [A paper read before the National Assn. of Colliery Managers, England].—I. & C. Tr. Rev. Aug. 18 1916; p 194; pp 1; 35c.

Hopwood, William.—*Mining and Dealing with Mine Water in the Mold Coalfield, England.* [A paper read before the National Assn. of Eng., England].—I. & C. Tr. Rev. Aug. 4 1916; p 127; pp 1⅓*; 35c.

Hopwood, William.—*Some Personal Experiences of Coal Mining in North Borneo.* [A paper read before the National Assn. of Colliery Mgrs. The methods of mining, prospects for this undeveloped field and geography of the country are among things reviewed].—I. & C. Tr. Rev. Nov. 10 1916; p 574; pp 2*; 35c.

Jackson, C.—*Rock Excavation in Coal Mines.* [Five types of drills are described, including electric and compressed air drills, the latter getting its air from a portable electrically driven compressor].—Coal Age July 1 1916; p 32; pp 2¼*; 20c.

Lesher, C. E.—*Coal in* 1915. [Reviews of each producing state are made as regards operations and productions, besides a general review of conditions affecting the coal industry in the United States].—Min. Res. U. S. II:24; pp 87.

Lowell, F. L.—*Mines and Mineral Resources of Del Norte, Humboldt and Mendocino Counties, California.* [Reviews operations in detail, locates separate deposits and describes them].—Calif. Mg. Bur.; pp 59*.

Lupton, Arnold.—*Coal Resources of the United Kingdom.* [A paper read before the South Wales Inst. of Eng.].—I. & C. Tr. Rev. July 28 1916; p 95; pp 2; 35c.

McGrath, J. W.—*Newfoundland Coal Deposits.* [A review of the deposits now being held as reserves and those being operated].—Canadian Mg. Jnl. Sept. 15 1916; p 439; pp 2½; 35c.

Nelson, W. A.—*The Tennessee Coal Field South of the Tennessee Central Railroad.* [Describes the geology, mining and nature of the coals in general for the entire area and separately for the different districts].—Res. of Tenn. July 1916; p 155; pp 29*.

Peltier, M. F.—*Coal Mining in Northern Wyoming.* [Briefs on operations of several companies, the coal deposits and grades and methods used in mining].—Coal Age Nov. 18 1916; p 832; pp 2¾*; 20c.

Reed, Frank.—*Coal Mining Under the River Waikato and Lake Hakanoa, New Zealand.* [Abst. from the annual report of the government].—Coll'y Guard. Sept. 1 1916; p 399; pp 2½*; 35c.

Sampson, R. J.—*An Economical System of Mining.* [The system allows of complete extraction of the ground at a low cost and consists mostly of pillar drawing. A tenacious sandstone roof permits the running of wide entries].—Coal Age Sept. 23 1916; p 494; pp 2¼*; 20c.

Sayre, Edward A.—*Shaft Sinking Through Soft Material.* [Costs and methods of operation at an Iowa coal mine].—Bull. A. I. M. E. Sept. 1916; p 1523; pp 8*; 35c.

Sherwin, P. M.—*The Bituminous Coal Mines of Crow's Nest Pass, British Columbia.* [A general description of the various mines, their geological formation and operation].—Coal Age Dec. 23 1916; p 1034; pp 3½*; 20c.

Shumway, Ralph W.—*The Coal Industry of Colorado.* [A general review of the industry in Colorado and the coal production].—Colo. School of Mines Qt'ly April 1916; p 26; pp 7; 35c.

Simpson, F. L. G.—*A Description of the Method of Working Out the Pillars at the Mohpani Mines, India, by Means of Packing and a Comparison of the Dry and Wet Systems of Packing.* [Seven methods are herein described].—Trans. Mg. & Geol. Inst. of India Oct. 1916; p 29; pp 20*; $1.

Smith, Watson.—*Early and Modern Coal Mining Methods in Japan.* [From the Jnl. of the Royal Soc. of Arts, being a brief general description of the mines in the country].—C. Tr. Bull. Oct. 2 1916; p 43; pp 1¾; 25c.

Ting, V. K.—*The Coal Resources of China.* [A general review of the country as regards coal deposits].—Far East. Rev. June 1916; p 1; pp 4*; 35c.

Watts, A. C.—*Coal Mining Methods in Utah.* [Treats on the nature of the coals and peculiar geological features of the formation which control the methods of mining].—Coal Age Aug. 5 1916; p 214; pp 5¾*; Aug. 12 1916; p 258; pp 5*; 40c.

Webb, W. B.—*The Elkhorn Coal Co.'s Plant, Kona, Kentucky.* [A brief description of development in eastern Kentucky].—Coal Age Aug. 12 1916; p 264; pp 1½*; 20c.

——— *Carriden Coal Co.'s New Pits,*

England. [Describes the formation and methods and equipment used in sinking its No. 1 and 2 shafts].—Coll'y Guard. Sept. 15 1916; p 497; pp 1½*; 35c.

——— *Coal Mining in South Africa.* [Deals with the possibilities of further development].—S. Afr. Engg. Sept. 1916; p 45; pp 1¼*; 35c.

——— *Mechanical Equipment at Point-No-Point.* [Details of coal, water and steam handling at the Essex plant of the Public Service Electric Co., New Jersey].—Pract. Eng. Sept. 15 1916; p 771; pp 15¼*; 20c.

Transport, Haulage, Conveying, Etc.

Barnett, V. H.—*Geology of the Hound Creek District of the Great Falls Coal Field, Cascade County, Montana.* [Geologic maps and description of the formation are given].—U. S. G. S. Bull. 641-H; pp 17*.

Cantrill, T. C.; Dixon, E. E. L.; Thomas, H. H.; Jones, O. T.—*Geology of the South Wales Coal Field.* [Particularly the field around Milford].—Geol. Surv. of Eng. and Wales; Memoir; His Majesty's Stationery Office, London; $1.

Clapp, Charles H.—*Geology of the Nanaimo Map-Area.* [The area is on Vancouver island, British Columbia. Coal is the main product, though sand and gravel, clay and stone are also produced].—Canada Geol. Surv. Memoir 51; pp 135*.

Crider, A. F.—*The Coals of Letcher County, Kentucky.* [Geology is taken up in detail and the different coal beds are described separately].—Kentucky Geol. Surv. Vol. VI; Ser. VI; pp 234.

Fearnsides, W. G.—*The Coal Seams of South Yorkshire.* [A paper read before the Sheffield Soc. of Eng.]—Coll'y Guard. Oct. 20 1916; p 749; pp 1⅓*; 35c.

Ferguson, David.—*Form and Structure of the Coal Fields of Scotland.* [A paper read before the Inst. of Mg. Eng., England].—Coll'y Guard, Sept. 22 1916; p 545; pp 1⅔; 35c.

Ferguson, David.—*The Coal Fields of Scotland.* [A paper read before the Inst. of Mg. Eng., Scotland. The geology and nature of the deposits are described].—Coal Tr. Bull. Nov. 15 1916; p 47; pp 3¾; 25c.

Glenn, L. C.—*The General Features of the Tennessee Coal Field North of the Tennessee Central Railroad.* [A review of the geology of the formation, coals and mining operations in the area].—Res. of Tenn. July 1916; p 127; pp 28*.

Hinds, Henry.—*The Coal Resources of the Clintwood and Bucu Quadrangles, Virginia.* [A complete description of each bed in the area is given, with a general geologic description of the area as a whole].—Va. Geol. Surv. Bull. XIII; pp 206*.

Kay, Fred H.; White, K. D.—*Coal Resources of District VIII, Illinois.* [Detailed description of the deposits and formation surrounding Danville]. — State Geol. Survey Bull. 14; pp 68*.

Lee, Wallace.—*Geology of the Kentucky Part of the Shawneetown Quadrangle.* [The economic deposits are composed of coal, oil, lead, zinc and clay].—Kentucky Geol. Surv.; pp 73.

Loftus, N.—*New Theory for Coal Formation.* [Says that coal was formed from the decomposition of carbon dioxide, which gas was near the earth's surface before mountains were made].—Coal Tr. Bull. Sept. 15 1916; p 41; pp 1½; 25c.

Lupton, Charles T.—*Geology and Coal Resources of Castle Valley in Carbon, Emery and Sevier Counties, Utah.*—U. S G. S. Bull. 628; pp 88*; 30c.

Nelson, W. A.—*The Tennessee Coal Field South of the Tennessee Central Railroad.* [Describes the geology, mining and nature of the coals in general for the entire area and separately for the different districts].—Res. of Tenn. July 1916; p 155; pp 29*.

Ries, Heinrich.—*Economic Geology.* [Fourth edition, revised and enlarged].—Wiley & Sons; book; pp 856*; $4.

Sherwin, P. M.—*The Bituminous Coal Mines of Crow's Nest Pass, British Columbia.* [A general description of the various mines, their geological formation and operation].—Coal Age Dec. 23 1916; p 1034; pp 3½*; 20c.

Staples, Ernest H.—*Some Effects of the Master Folds on the Structure of the Bristol and Somerset Coalfields, England.* [A paper read before the Manchester Geol. & Mg. Soc.].—I. & C. Tr. Rev. Oct. 13 1916; p 1; Coll'y Guard. Oct. 13; p 699; pp 1⅔; 35c.

Watts, A. C.—*Coal Mining Methods in Utah.* [Treats on the nature of the coals and peculiar geological features of the formation which control the methods of mining].—Coal Age Aug. 5 1916; p 214; pp 5¾*; Aug. 12 1916; p 258; pp 5*; 40c.

Preparation, Handling, Marketing, Etc.

Cady, Gilbert H.—*Coal Resources of District VI, Illinois.* [Describes the coals and formation of the district].—Iils. Geol. Surv. Bull. 15; pp 94*.

Crankshaw, H. M.—*Methods of Mining*

in the Anthracite Field. [Deals with methods of timbering and running haulage and gangway, etc.].—Coal Age Oct. 7 1916; p 570; pp 5¾*; 20c.

Edsall, H. J.—*Some Modern Coal Tipples.* [Discusses the designs of tipples and proper equipment to be used therein].—Coal Age July 1 1916; p 4; pp 4*; 20c.

Green, R.—*Horse Haulage vs. Compressed Air Haulage at Collieries.* [In discussing the subject a comparison of actual costs is made].—Canadian Mg. Inst. Bull. Aug. 1916; p 711; pp 6; 35c.

Husband, R. H.—*Practical Notes on the Various Systems of Underground Haulage Applicable to Indian Mines.*—Trans. Mg. & Geol. Inst. of India Sept. 1916; p 63; pp 14; $1.25.

Painter, Walter.—*Virginia Power Co. Coal and Ash Tower.* [Describes a tower arrangement for the handling of coal and ashes].—Pract. Eng. Dec. 1 1916; p 985; pp 1*; 20c.

Pleschner, O. J.—*Design for Auxiliary Shaft.* [This auxiliary hoist shaft does away with the necessity of detouring the air from the shaft around the passages leading to the other shaft compartments].—Coal Age Dec. 2 1916; p 915; pp 1½*; 20c.

Warden-Stevens, F. J.—*Coal Shipping and Bunkering in Australia.* — Coll'y Guard. July 21 1916; p 109; pp 2½*; 35c.

Warden-Stevens, F. J.—*Coal Shipping from South Africa.* [Describes several shipping appliances and arrangements].—Coll'y Guard. June 30 1916; p 1229; pp 2⅓*; 35c.

Warden-Stevens, F. J.—*Coal and Shipping.* [A description and line drawings of the plant for coaling vessels at the Panama canal].—Coll'y Guard. Nov. 10 1916; p 899; pp 2⅓*; 35c.

Wilson, E. B.—*Slope Haulage in Alabama.* [Describes a slope haulage-way with varying grade over a mile long. It has handled the record coal output of the state].—Coal Age Aug. 5 1916; p 220; pp 2*; 20c.

——— *American Coal Mine Haulage.* [Describes the practice in detail].—Coll'y Guard. July 14 1916; p 61; pp 2½*; 35c.

——— *Coal Storage Plant on the Monongahela Innovation for River Operators that Is Arousing Keen Interest.* [A description of the storage plant is given].—Coal Tr. Bull. Sept. 15 1916; p 35; pp 1½; 25c.

——— *Koepe Winding at Plenmeller Colliery, England.*—I. & C. Tr. Rev. July 21 1916; p 65; pp 3*; 35c.

——— *Rapid Gain in Coal Movements Over Heaviest Railroads.* [Abst. from a U. S. Dept. of Commerce report].—Coal Tr. Rev. Aug. 15 1916; p 44; pp 2; 25c.

Mechanical Cutters

Allen, Andrew.—*Bituminous Coal Preparation.* [A paper read before the Kentucky Mg. Inst.].—Coal Tr. Rev. July 15 1916; p 43; pp 4¾; 25c.

Allen, Andrew.—*The Preparation of Bituminous Coal.* [A paper read before the Kentucky Mg. Inst.].—Coal age July 1 1916; p 9; pp 5½*; 20c.

Burroughs, William G.—*A Concrete Tipple in Ohio.* [A tipple for handling a moderate production, built by the Black Diamond Coal Co.].—Coal Age Nov. 25 1916; p 872; pp 1¾*; 20c.

Davenport, Frank B.—*The History of a Successful Jig.* [Drawings and description are given].—Coal Age Sept. 23 1916; p 497; pp 1½*; 20c.

Edsall, Henry J.—*American Coal Tipples.* [A description of the Warrior Coal Co.'s plant in West Virginia].—Coll'y Guard. Nov. 24 1916; p 1005; pp 2*; 35c.

Edsall, H. J.—*Some Modern Coal Tipples.* [Discusses the design of tipples and proper equipment to be used therein].—Coal Age July 1 1916; p 4; pp 4*; 20c.

Fear, Thomas G.—*Getting Clean Coal.* [A paper read before the Alabama Coal Operators' Assn. It states that the human factor, methods of mining and dockage have considerable to do with the question].—Coal Age Sept. 30 1916; p 541; pp 1½; 20c.

Geismer, H. S.—*Revolving Dumps at Coal Mines.* [On the use and description of various installations of this type].—Coal Age Aug. 5 1916; p 224; pp 1½*; 20c.

Hanlin, J. G.—*Flat Top Coal-Washing Plant.* [It is claimed that the washing reduces the ash content 8%. There are 5 primary jigs and 1 rewashing jig handling a total of 1600 tons per day].—Coal Age Nov. 18 1916; p 841; pp 2¾*; 20c.

Holbrook, E. A.—*Dry Preparation of Bituminous Coal at Illinois Mines.* [The nature of the coal and the deposits are described. Drawings of tipples and plants are shown and a complete description of methods used in preparing coal is given].—Univ. Ill. Bull. 43; pp 133*.

Machin, W. A.—*The Jigging Conveyor Underground and Methods of Working.* [A paper read before the National Assn. of Colliery Mgrs., England. Several types are described and drawings shown].—I. &

C. Tr. Rev. Nov. 3 1916; p 539; pp 4*; 35c.

Miller, Benjamin L.; Singewald, J. T. Jr.—*Exploitation of Chilean Mines.* [Treats on the industries from an economic and industrial standpoint].—E. & M. J. Aug. 12 1916; p 289; pp 4¼*; 25c.

Mullen, Patrick.—*New Methods for Mining Bituminous Coal.* [Short-wall mining machines are used for extracting rib coal by the H. C. Frick Coke Co.].—Coal Tr. Bull. Nov. 15 1916; p 43; pp 2; 25c.

Mullen, Patrick.—*New Mining Method in the Connellsville Region.* [A paper read before the Engineers' Soc. of Western Pennsylvania].—Coal Age Oct. 28 1916; p 700; pp 2¼*; 20c.

Parodi, Lorenzo.—*Ricordi e Note Sulla Metallurgia Italiana.* [A record of the metallurgical production of metals in Italy during 1914 and 1915].—Metallurgia Ital. April 30 1916; p 260; pp 15; $1.

Raymond, M.—*New Tipple at Gloucester, Ohio.* [Drawings, illustrations and detailed description are given].—Coal Age July 1 1916; p 30; pp 2*; 20c.

Schiefer, H. V.—*An Automatic Tipple Near Houtzdale, Pa.* [Two men handle the tipple with a capacity of 2500 tons per day, and they handle 8 cars per minute. Line drawings and description of the tipple are given].—Coal Age Dec. 23 1916; p 1040; pp 4*; 20c.

Walker, Sydney F.—*Coal-Face Conveyors Employed in the United Kingdom.* [Describes two styles of conveyors of this type for use in handling coal from the face in thin beds].—Coal Age Nov. 4 1916; p 744; pp 4¾*; Nov. 11 1916; p 790; pp 4¾; 70c.

Warden-Stevens, F. J.—*Coal Shipping and Bunkering in Australia.* — Coll'y Guard. July 21 1916; p 109; pp 2½*; 35c.

Warden Stevens, F. J.—*Coaling at the Panama Canal.* [Describes coaling docks and methods of operation there].—Coll'y. Guard. Oct. 20 1916; p 745; pp 3*; 35c.

Warden-Stevens, F. J.—*Coal and Bunkering Ports of Canada.* [Speaks of the extent of operations of bunkers in the Dominion].—I. & C. Tr. Rev. Sept. 8 1916; p 449; pp 3*; 35c.

——— *"British Baum" Coal Washing Plant.* [Sectional and plan drawings].—Coll'y Guard. July 28 1916; p 161; pp 2*; 35c.

——— *Coal Exports and Bunker Shipments in 1914 and 1915 in the United Kingdom.* [Parliamentary report showing the amount of coal shipped from each United Kingdom port to each foreign port].—I. & C. Tr. Rev. July 21 1916; p 74; pp 2; 35c.

——— *Coal Handling on the Norfolk & Western Railway.* [A brief description of the coal handling facilities and methods used by this road].—Coal Age Sept. 23 1916; p 498; pp 1½; 20c.

———. *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables].—McGraw-Hill Co.; book; pp 1172*; $4.

——— *Coal Washer, A New Belgian.* [Gives a complete description of the washer and drawings showing its construction and operation in a plant].—Coll'y Guard. Nov. 3 1916; p 851; pp 2*; 35c.

——— *Equipment of the Valleyford Colliery.* [Gives drawings and description of the steam-turbo and electric plants besides a description of the coal washing plant and fan and boiler house].—Coll'y. Guard. Nov. 17 1916; p 951; pp 2⅛*; 35c.

——— *Mechanical Coal Stage at Dairycoates, England.* [Drawings and description of the structure are given].—Coll'y Guard. Sept. 22 1916; p 546; pp 1⅛*; 35c.

——— *New Coal Washery, Coke Ovens and By-Product Plant at Risca Colliery, England.* [Contains a supplement sheet with line drawings and views of the plant].—I. & C. Tr. Rev. Dec. 1 1916; p 663; pp 5*; 35c.

——— *Smokeless Fuel, Gas, Oil and Ammonia Production.* [A description of equipment used and some details on the methods of operation].—I. & C. Tr. Rev. July 7 1916; p 10; pp 2*; 35c.

——— *Surface Plant at Brodsworth Main Colliery, England.* [Turbines using mixed pressure steam are used. Hoist, boilers, compressed air, etc., are described].—Coll'y Guard. Sept. 1 1916; p 401; pp 1½*; 35c.

Power General

Collins, V. B.—*Coal-Cutting by Machinery in the Newcastle and Maitland Districts, N. S. W.* [Machines operated by electricity and compressed air are described and discussed].—Northern Engg. Inst. of N. S. W. April Proc.; p 25; pp 30*; 50c.

Mullen, Patrick. — *New Methods for Mining Bituminous Coal.* [Short-wall mining machines are used for extracting rib coal by the H. C. Frick Coke Co.].—Coal Tr. Bull. Nov. 15 1916; p 43; pp 2; 25c.

Electricity in Coal Mining

Brown, J. F. K.—*Imagination Applied to Mining.* [A review of the possible future as regards the transmission of electric power, pumping, etc. The cases are purely hypothetical].—Coal Age July 22 1916; p 142; pp 2¾; 20c.

Cooper, S. G.—*The Production and Use of Power and Its Relation to Fuel Economy.*—I. & C. Tr. Rev. Aug. 4 1916; p 125; pp 1; 35c.

Hines, Richard P.—*Natural Gas Operating Coal Mines.* [Speaks of a central gas power station of the Consolidated Coal Co., W. V., and the distribution of the electricity from this station to the mines].—C. Tr. Bull. Oct. 2 1916; p 34; pp 1¾; 25c.

Symons, S. W.—*Compressed-Air Coal Cutters in Canadian Mines.* [The drill is somewhat similar to the ordinary post rock drill].—Coal Age July 1 1916; p 28; pp 1¼*; 20c.

——— *Coedely Colliery, England.* [Describes the power plant and general surface equipment, with some details].—I. Tr. Rev. Dec. 8 1916; p 693; pp 3*; 35c.

Explosives, Blasting

Futers, T. Campbell.—*The Mechanical Equipment of Cwn Colliery, Llantwit Fardre, South Wales.* [The hoist, shaft, steam and electric equipment at the mines are described].—Coll'y Guard. Dec. 1 1916; p 1055; pp 3*; 35c.

Warren, H. M.—*Electrical Distribution and Application in Mines.* [On the fastening and placing of cables underground in coal mines].—Coal Age July 15 1916; p 98; pp 5¼*; 20c.

——— *Electric Winding in South Yorkshire Collieries, England.*—Coll'y Guard. Aug. 18 1916; p 301; pp 1⅓*; 35c.

Explosions—Mine Fires, Gases, Coal Dust, Fire Damp, Etc.

——— *The Use of Squibs Vs. Fuses.* [The results of a thorough study made by the British Government bringing out that in general squibs are the safest and best].—Coal Age Sept. 23 1916; p 501; pp 1½; 20c.

Safety, Rescue, First Aid, Sanitation

Ashworth, James.—*The Composition of Natural Gas.* [Discussion on coal mine gases].—Coal Age July 22 1916; p 146; pp 1¼; 20c.

Blatchford, A. S.—*The Influence of Incombustible Substances on Coal-Dust Explosions.*—Trans. N. Eng. Inst. Mg. & Mech. Eng. No. 46; 1916; p 235; pp 17.

Bradley, Walter W.—*Mines and Mineral Resources of Colusa, Glenn, Lake, Marin, Napa, Solano, Sonoma, and Yolo Counties, California.* [Separate descriptions of mines, deposits and operations of mines and plants].—Calif. Mg. Bur.; pp 208*.

Brooks, Alfred H.—*Mineral Resources of Alaska.* [Descriptions of mines and deposits, reviewing their production, geology and geography. The coal mining lease laws are also spoken of].—U. S. G. S. Bull. 642; pp 279*.

Budge, G. D.—*Stone Dusting in Steam Coal Collieries.* [A paper read before the South Wales Inst. of Eng.].—Coll'y Guard. Sept. 22 1916; p 548; pp 2½*; 35c.

Burrell, G. A.; Seibert, F. M.—*Gas Analysis as an Aid in Fighting Mine Fires.* [Discusses the change in air during a mine fire and the effects of gas on the fire and its origin. Methods of sampling and analyzing are given].—U. S. Bur. of Mines Tech. Paper 13; pp 16*.

Geismer, H. S.—*Explosion at the Bessie Mine, Alabama.* [Thirty men are believed to have been killed in the explosion in a mine of the Sloss-Shefield Steel & Iron Co.].—Coal Age Nov. 18 1916; p 835; pp 2¾*; 20c.

Graham, J. Ivon.—*The Occlusion of Gases by Coal.* [A paper read before the Institution of Mining Engineers, dealing with the permeability of coal, with respect to gases, etc.].—Coll'y Guard, Sept. 15 1916; p 513; pp 1. I. & C. Tr. Rev. Sept. 15; p 308; pp 1; 35c.

Graham, Thomas.—*Gaseous Mines in the Crow's Nest Pass Coal Field, British Columbia.* [A paper read before the Mine Inspector's Inst. in which considerable is said of the mines of the district and methods of sampling the air].—Coal Age Dec. 2 1916; p 920; pp 3½*; 20c.

Haas, Frank.—*Mine Explosions.* [The better known safeguards against dust explosions are spoken of and the possible weak points of each brought out].—Coal Age Sept. 9 1916; p 418; pp 3¾; 20c.

Hood, W. W.; Knox, G.; Evans, E. C.—*South Wales Coal Dust Experiments.* [A paper read before the South Wales Colliery Officials' Assn.].—Coll'y Guard. Aug. 11 1916; p 256; pp 1⅓*; 35c.

Krebs, Charles E.; Teets, D. D., Jr.; White, I. C.—*County Reports of Raleigh and the Western Portions of Mercer and Summers Counties, West Virginia.* [An account of the geology, mineral deposits and operations].—W. Va. Geol. Surv. Report; pp 778*.

Norris, R. V.—*Coal-Mine Fires.* [Discusses ways for the prevention of the same].—Coal Age Oct. 21 1916; p 666; pp 6*; 20c.

Pellegrino, John.—*Quenching a Mine Fire in a Kansas Mine with Chemicals.*—Coal Age Aug. 26 1916; p 303; pp 1¼*; 20c.

Powell, J. W.—*The Season of Explosions.* [Treats on the danger of winter as a time when most mine explosions occur].—Coal Age Sept. 16 1916; p 458; pp 2¼; 20c.

Shaw, Wm.—*Coal Dust, How It Affects the Mines in Crowsnest Pass.* [Speaks of the peculiarities of coal dust in this mine and methods employed to cope with it].—Bull. Canadian Mg. Inst. July 1916; p 647; pp 8; 35c.

Tompkins, Norton.—*Explosive Gas in Coal Mines.* [Information gained while studying evidence in regard to Bath thermal springs].—Coal Tr. Bull. Sept. 15 1916; p 48; pp 3; 25c.

Tompkins, Norton.—*Explosive Gas in Coal Mines.* [On its source and origin].—Coll'y Guard, Aug. 18 1916; p 302; pp 1*; 35c.

Weber, Heinrich.—*Die Schlagwetterexplosion auf dem Steinkohlenbergwerk Minister Achenbach I/II bei Dortmund am 30 Januar,* 1914. [A heavy explosion at the Minister Achenbach I/II mine near Dortmund, Germany].—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 428; pp 15*; $1.50.

Yuvenalieff, N.—*Gas Liberation in Russian Mines and Its Cause.* [From Gorno-Savodskoie Delio].—C. Tr. Bull. Aug. 1 1916; p 53; pp 3; 25c.

Yuvenalieff, N.—*On the Liberation of Gas in Mines.* [From the Gorno-Savodskoie Dielo, explaining the causes for the liberation of mine gases].—Coll'y Guard. July 7 1916; p 17; pp 1⅓*; 35c.

——— *Mitteilungen über einige der bemerkenswertesten Explosionen beim preussischen Steinkohlenbergbau im Jahre* 1913. [A review of explosions in the anthracite mines of Prussia].—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 339; pp 4*; $1.50.

——— *Stone Dusting in Steam Coal Collieries.* [Discussion before the South Wales Inst. of Eng.].—Coll'y Guard. Nov. 17 1916; p 953; pp 1⅔; 35c.

Lighting, Signalling

Lloyd, John.—*Safety and Efficiency in Coal Mining.* [A general discussion of measures taken along this line].—Coal Age Aug. 26 1916; p 332; pp 3*; 20c.

Pettibone, C. E.—*Testing Mine Rescue Apparatus.* [Abstract of a paper read before the National Safety Council. Advocates testing breathing apparatus with 5 ozs. internal pressure].—Coal Age Nov. 25 1916; p 875; pp 2½*; 20c.

Sterling, J. T.—*Mine Rescue Work Developed in Alberta.* [Abst. from a paper read before the Canadian Mg. Inst., being a general description of the advances made along that line in the province].—C. Tr. Bull. Oct. 2 1916; p 34; pp 1¼; 25c.

Accidents

Crankshaw, H. M.—*Mining and Ventilation Methods in Thick Pitching Beds.* [A paper to be read at the A. I. M. E. Arizona meeting].—Coal Tr. Bull. Aug. 15 1916; p 23; pp 5*; 25c.

Graham, Thomas.—*The Coal Creek Collieries, British Columbia.* [Abstract of a paper read before the Mine Inspectors' Inst., in which special stress is given analysis of the air in the mine workings].—Coal Age Dec. 9 1916; p 964; pp 2¾*; 20c.

Johnson, Moses.—*Ventilating Mines When Tipples Are on Fire.* [Diagrams are given to illustrate the methods].—Bull. Canadian Mg. Inst. July 1916; p 655; pp 7*; 35c.

Williams, R. Y.—*Mine Ventilation Stoppings.* [Costs of construction and maintaining are given with methods of constructing the stoppings, with special reference to Illinois fields].—U. S. Bur. of Mines Bull. 99; pp 30*; 20c.

Labor, Management, Sociological

Fay, A. H.—*Coal Mine Fatalities in the United States,* 1870-1914. Also contains statistics on coal production, labor and mining methods by states and calendar years].—U. S. Bur. of Mines; Bull. 115; pp 366; 50c.

Fay, Albert H.—*Coal Mine Fatalities in the United States, May,* 1916. [The nature, number and location of the accidents are given in tabulated form].—U. S. Bur. of Mines Monthly Statement; pp 28.

Fay, Albert H.—*Coal-Mine Fatalities in the United States, August, 1916.* [The information is mostly in tabulated form].—U. S. Bur. of Mines Report; pp 28.

Fay, A. H.—*Coal Mine Fatalities in the United States in July,* 1916.—U. S. Bur. of Mines; pp 28.

Fay, Albert H.—*Monthly Statement of Coal Mine Fatalities in the Unted States.* [Contains a list of permissible explosives, lamps and motors tested prior to Aug. 31

1916].—Bur. of Mines Statement July 1916; pp 28.

Fay, Albert H.—*Production of Explosives in the United States.* [Also contains notes on coal mine accidents due to explosives and a list of permissible explosives, lamps and motors tested before May 1 1916].—U. S. Bureau of Mines Tech. Paper 159; pp 24; 15c.

Miscellaneous

Pickup, William.—*Effects of Labor Movements and Legislation on the Economic Position of Coal Mining.* [A paper read before the Manchester Geol. and Mg. Soc., England].—I. & C. Tr. Rev. Nov. 17 1916; p 609; pp 1; 35c.

Wilson, Herbert M.—*Workmen's Compensation Insurance and the Coal Mining Industry.* [A general discussion of the subject from an economic viewpoint].—Mg. Cong. Jnl. Oct. 1916; p 156; pp 7; 35c.

Production

Blake, A. F.—*A Graphic Chart for the Valuation of Coal.* [The chart is reproduced and from it the values can be obtained according to the water, ash and B. T. U. content of the coal in question].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1140; pp 2¾; 60c.

Brown, J. F. K.—*Tenure of Coal Ages.* [Describes and discusses four systems for the acquisition and operating of coal lands].—Coal Age Dec. 2 1916; p 912; pp 3; 20c.

Brown, J. F. K.—*The Tonnage Available.* [A description of methods of computing the tonnage available in a coal seam and discussion of various factors entering into the figuring of the same.]—Coal Age Dec. 9, 1916; p 956; pp 3½*; 20c.

Campbell, M. R.—*Half Century Life of Coal Supply.* [Abst. from a U. S. G. S. report].—Coal Tr. Bull. Aug. 15 1916; p 40; pp 2½; 25c.

Drakeley, T. J.—*Iron Pyrites and the Oxidation of Coal.* [From the Jnl. of the Chem. Soc.].—Coll'y. Guard. Oct. 20 1916; p 762; pp 1⅓*; 35c.

Drakeley, T. J.—*The Examination of Coal and Coke.* [Deals with methods for determining the sulphur in coal].—Sci. & Art of Mg. Nov. 4 1916; p 148; pp 2; 35c.

Evans, David.—*Nationalization of Coal Mines.* [A discussion of the subject from the point of view that this will be necessary because of the conflicts now starting between labor and capital in Great Britain].—I. & C. Tr. Rev. Sept. 8 1916; p 271; pp 2½; 35c.

Gadd, C. J.—*Use of Powdered Coal in Metallurgical Processes.* [A discussion of the engineering principles involved].—Jnl. Frank. Inst. 1916 No. 182; p 323; pp 30; 35c.

Hopwood, William.—*Mining and Dealing with Mine Water in the Buckey Coalfield, England.* [A paper read before the National Assn. of Colliery Mgrs. Details are given of the methods used in this mine].—I. & C. Tr. Rev. Sept. 15 1916; p 314; pp 3*; 35c.

Hopwood, William.—*Some Personal Experiences in Coal Mining in North Borneo.* [A paper read before the National Assn. of Colliery Managers, England].—I. Tr. Rev. Dec. 1 1916; p 674; pp 2*; 35c.

Hurley, Edward N.—*Federal Trade Commission and the Mining Industry.* [A paper read before the American Mg. Cong. Brings out the great need of better cost accounting and selling of coal on this basis].—Coal Age Nov. 25 1916; p 887; pp 3; 20c.

Jeffrey, E. C.—*Methods of Studying Coal.* [A new method revealing plant records in the genesis of coal].—Sci. Conspectus Vol. VI: III; p 71; pp 6*; 25c.

Lathrop, L. A.—*Coal Trade in Wales During* 1915. [Extract from a report of the U. S. Bureau of Commerce].—Coal Tar Bull. July 1 1916; p 50; pp 3½; 25c.

Lishman, G. P.—*Recent Improvements in By-Product Coke Oven Practice.*—Jnl. Soc. of Chem. Ind. July 31 1916; p 767; pp 3*; 50c.

Louis Henry.—*Waste in Coal Production.*—Jnl. Soc. Chem. Ind. July 31 1916; p 770; pp 3½; 50c.

Mairet, F. F.—*Fuel Economy at Collieries.* [A paper read before the Midland Inst. of Mg., Civil & Mech. Eng.].—I. & C. Tr. Rev. July 21 1916; p 70; pp 2*; Coll'y Guard. July 21 1916; p 114; pp 2½*; 35c.

Mathews, P. L.—*Making a Cost Profile.* [Method for plotting costs in curve form].—Coal Age Nov. 4 1916; p 751; pp 1¾*; 20c.

McArthur, J. D.—*The Utilization of Coal to the Best Advantage in the Interests of National Economy.* [A paper read before the Inst. of Marine Engineers, England].—I. & C. Tr. Rev. Nov. 10 1916; p 582; pp 2; 35c.

Nebel, Merle L.—*Specific Gravity Tests of Illinois Coals.* [On the way in which the tests were made and the results as obtained with Illinois coals].—Univ. Ill. Bull. 89; pp 49*.

Parr, S. W.—*Chemical Study of Illinois Coals.* [Gives the analysis and discussion regarding the same for a number of different samples].—Ills. Geol. Surv. Bull 3; pp 86*.

Pearce, William.—*Consumption of Coal in the Prairie Provinces.* [Details for provinces, prices, etc., are included. Considerable of the information is tabulated]. —Canadian Mg. Inst. Bull. Sept. 1916; p 790; pp 5½; 50c.

Pope, George S.—*Methods of Sampling Delivered Coal.* [Methods of sampling used in the government purchase of coal]. —U. S. Bur. of Mines Bull. 116; pp 64*; 25c.

Porter, J. B.—*An Investigation of the Coals of Canada.* [Tests conducted at McGill Univ. with reference to the economic properties of the coal].—Canada Dept. of Mines Form No. 338; pp 194*.

Ralston, O. C.—*Graphic Studies of Ultimate Analyses of Coals.* [A graphic method described in detail by which coals are classified and studied according to their chemical contents].—U. S. Bur. of Mines Tech. Paper 93; pp 41*; 20c.

Ramsberg, C. J.—*Problems in Byproduct Coking.* [A paper read before the Eng. Soc. of West Pennsylvania, in which reference is made to the mixing of coals for coking and not the mechanical side of the question].—Coal Age Dec. 9 1916; p 969; pp 1¾; 20c.

Smith, George Otis; Lesher, C. E.—*Expert's View on Cost of Coal.* [Met. & Chem. Engg. Dec. 1 1916; p 631; pp 4¼; 35c. A paper read before the American Mg. Cong. advocating that costs should be more accurately kept and speaking of government operation of the mines].—C. Tr. Bull. Dec. 1 1916; p 25; pp 4; 25c.

Stillman, A. L.—*Coal Briquettes—Fuel of Future.* [A review of the past and present use of briquetted coal].—C. Tr. Bull. Oct. 16 1916; p 33; pp 2; 25c.

Yuvenalieff, N.—*On the Liberation of Gas in Mines.* [From the Gorno-Savodskoie Dielo, explaining the causes for the liberation of mine gases].—Coll'y Guard. July 7 1916; p 17; pp 1½*; 35c.

——— *British Association for the Advancement of Science.* [A report of the Fuel Economy Committee dealing with the use, consumption and conservation of coal in different industries]. — Coll'y Guard. Sept. 15 1916; p 499; pp 4*. I. & C. Tr. Rev. Sept. 15; p 299; pp 5*; 35c.

——— *Coal Miners' Pocketbook.* [Gives rules, principals, formulas and tables]. — McGraw-Hill Co.; book; pp 1172*; $4.

——— *Cost of Coal and Oil as Fuel.* [Abst. from Power. The cost of steam per pound is given, with the evaporation per pound of coal and B. T. U. per gallon of oil].—E. & M. J. July 8 1916; p 93; pp 1¾*; 25c.

——— *French Maximum Prices for Imported Coals.*—Coll'y Guard. Aug. 18 1916; p 306; pp 1½; 35c.

——— *New South Wales Embarks on Coal Mining Enterprise.* [A state owned coal mine].—Mg. & Engg. Rev. Oct. 5 1916; p 13; pp 1; 35c.

——— *Rhodesia Chamber of Mines, Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau]. —Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Scientist's Report on Fuel Economy.* [A report of the Fuel Economy Committee of the British Assn. for the Advancement of Sci.].—C. Tr. Bull. Oct. 16 1916; p 40; pp 3; 25c.

By-Products

Bowie, C. P.—*Construction and Operation of a Single-Tube Cracking Furnace for Making Gasoline.* [Contains drawings and details, besides information for operation of the furnace].—U. S. Bur. of Mines Tech. Paper 161; pp 16*; 20c.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Childs, W. H.—*The Disposition of By-Product Oven Derivatives.* [A paper read before the American Iron and Steel Inst. A complete flow sheet is shown].—Coal Age Aug. 26 1916; p 344; pp 2*; 20c.

Clarke, Thomas C.—*The By-Product Oven an Adjunct to Preparedness.* [A paper read before the Soc. of Chem. Ind.].—Coal Age Aug. 26 1916; p 342; pp 1¾; 20c.

Dominian, Leon. — *Fuel in Turkey.* [Coal and petroleum are reviewed separately by the places in which they occur. The production, location and nature of the deposits are given].—Bull. A. I. M. E. June 1916; p 1011; pp 20*; 35c.

Egloff, G.; Twomey, T. J.; Moore, Robert J.—*The Effect of Temperature and the Time Factor in the Formation of Gasoline in the Gas Phase at Constant Pressure.* [The testing was mostly done with a Pennsylvania crude petroleum

oil].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1102; pp 3¼*; 60c.

Egloff, G.; Twomey, T. J.—*The Formation of Aromatic Compounds from the Cracking of a Gas Oil.* [This kind of oil is found in Pennsylvania].—Met. & Chem. Engg. July 1 1916; p 15; pp 2¾*; 30c.

Frood, G. E. B.—*South African Mining in* 1915. [Deals entirely with coal mining, production, accidents, timbering, sanitation and stone dusting].—Coll'y Guard. Nov. 10 1916; p 905; pp 1; 35c.

Gray, F. W.—*The Coal Trade in Nova Scotia During the First Half of* 1916. [Figures on production and a review of the conditions of the trade].—Canadian Mg. Jnl. July 15 1916; p 339; pp 1¾; 35c.

Gray, F. W.—*Nova Scotia Coal Production.*—Canadian Mg. Inst. Bull. Sept. 1916; p 801; pp 2; 50c.

Hamilton, Robert.—*Recovery of By-Products from Blast Furnace Gases.* [Brief reviews of several methods and the progress being made in this work].—Jnl. of Soc. of Chem. Ind. June 30 1916; p 663; pp 2¼; 35c.

Jimenez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150.

Lesher, C. E.—*Coal in* 1915. [Reviews of each producing state are made as regards operations and productions, besides a general review of conditions affecting the coal industry in the United States].—Min. Res. U. S. II:24; pp 87.

Lishman, G. P.—*Recent Improvements in By-Product Coke-Oven Practice.* [A paper read before the Society of Chem-- ical Ind.].—I. & C. Tr. Rev. July 28 1916; p 104; pp 1*; 35c.

Mingaye, J. C. H.—*The Saving By-Products in Coke Manufacture.* [From the Mineral Resources Bulletin, N. S. W., Dept. of Mines].—Mg. & Engg. Rev. Sept. 5 1916; p 315; pp 3¼; 35c.

Rakuskin, M. A.—*Ueber die Fortschritte der Naphthologie in Russland im Jahre,* 1913. [On the oil industry in Russia in 1913, including the production of by-products from petroleum].—Petroleum Oct. 21 1914: p 57; pp 4½; Nov. 4 1914; p 98; pp 3½; $1.20.

Shumway, Ralph W.—*The Coal Industry of Colorado.* [A general review of the industry in Colorado and the coal production].—Colo. School of Mines Qt'ly April 1916; p 26; pp 7; 35c.

——— *Boilers Heated by Coke-Oven Gas.* [Drawings of installations are shown and method of operation described].—I. & C. Tr. Rev. Aug. 25 1916; p 213; pp 3½*; 35c.

——— *British Columbia Annual Report of the Minister of Mines for* 1915. [Reviews metal production in general for the province and in detail for operating companies].—Mg. Engg. & Elect. Rec. Aug. 1916; p 76; pp 3½; 35c.

——— *British Columbia Report of the Minister of Mines.* [On the production and mineral industry of the province].—Mg. & Engg. Rec. Oct. 1916; p 92; pp 1½; 35c.

——— *Chinese Mineral Industry in* 1915. [A review of the production of refined metals].—July 8 1916; p 477; pp ¾; 35c.

——— *Iowa State Mine Inspectors' Report for the Biennial Period Ending Dec.* 31, 1915. [Reviews operations by counties, giving mine production and new equipment installed at mines, with accidents in the district in tabulated form].—State Mg. Bur. Report; pp 112.

——— *Italy's Coal Trade During War Doubles with America.* [Reviews the situation, production, imports and exports].—C. Tr. Bull. Aug. 1 1916; p 40; pp 2½; 25c.

——— *Mines Inspector's Reports for* 1915. [A report of accidents, operations and labor conditions at mines in Great Britain, being confined mostly to coal].—I. & C. Tr. Rev. Oct. 20 1916; p 483; pp 3; 35c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *New Coal Washery, Coke Ovens and By-Product Plant at Risca Colliery, England.* [Contains a supplement sheet with line drawings and views of the plant].—I. & C. Tr. Rev. Dec. 1 1916; p 663; pp 5*; 35c.

——— *New South Wales in* 1915. [Reviews the production of metals in the country].—Mg. Jnl. Sept. 2 1916; p 596; pp 2; 35c.

——— *Pretoria Inspectorate of Mines,* 1915 *Annual Report.*—S. Afr. Mg. Jnl. Oct. 7 1916; p 122; pp 1; 35c.

——— *Rhodesia Chamber of Mines, Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau].—Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Rhodesia Chamber of Mines Report of the Executive Committee.* [Tables of details on the production of gold

and asbestos properties in the district are given].—Rhodesia Chamber of Mines Report Aug. 1916; pp 6.

——— *Rhodesia Report of the Executive Committee of the Chamber of Mines and Production of Gold and Other Minerals in May,* 1916. [The production of operating gold companies is given individually].—Rhodesia Chamber of Mines Report May 1916; pp 6.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

——— *The Swedish Iron, Steel and Coal Industry in* 1915. [Some of the statistics, curves, etc., are taken from Jern-Kontoret's Annaler].—I. & C. Tr. Rev. Nov. 17 1916; p 614; pp 1*; 35c.

——— *Thrislington Colliery's New Coking and By-Product Plant, Durham, England.*—I. & C. Tr. Rev. June 23 1916; p 717; pp 1*; 35c.

COAL BRIQUETTING

See under Mill and Milling.

COKE

Burr, K. M.—*Safety in Coke Oven Operations.* [A paper read before the National Safety Council advocating the selection of workmen as a means for reducing accidents].—Coal Age Oct 28 1916; p 709; pp 2*; 20c.

Cooper, M. Stanley—*L'Industrie des Sous-Produits du Coke et Son Rapport Avec La Fabrication du Fer at de L'Acier.* [Abstract from the journal of the Iron and Steel Inst. dealing with the by-product coke industry and the making of iron and steel].—Metallurgie, French Feb. 1916; p 79; pp 22*; 75c.

Foster, J. R.—*Coking Coal Industry in Harlan County, Kentucky.* [A paper read before the Kentucky Mining Inst., in which a general review is made of the materials and methods used in the district].—Coal Age Dec. 16 1916; p 1002; pp 1½; 20c.

Lesher, C. E.—*Coke in* 1915. [Besides a review of production and activities in detail a map showing the location of all plants in the U. S. is given and the number of ovens at each is designated. Another table shows production by states from 1880 on].—Min. Res. of U. S. II:26; pp 44.

Mingaye, J. C. H.—*The Saving By-Products in Coke Manufacture.* [From the Mineral Resources Bulletin, N. S. W., Dept. of Mines].—Mg. & Engg. Rev. Sept. 5 1916; p 315; pp 3¼; 35c.

Ramsberg, C. J.—*Problems in Byproduct Coking.* [A paper read before the Eng. Soc. of West Pennsylvania, in which reference is made to the mixing of coals for coking and not the mechanical side of the question].—Coal Age Dec. 9 1916; p 969; pp 1¾; 20c.

Schiefer, H. V.—*Machinery for Mitchell Type of Rectangular Coke Oven.* [Speaks of machinery used in the handling of materials for this type of oven].—Coal Age Nov. 11 1916; p 796; pp 4½*; 20c.

Still, C.—*Kritische Streifzüge durch das Gebiet der Kokeriindustrie.* [A general talk on the coking industry, in which several formulas relative thereto are given].—Glückauf Oct. 1 1916; p 829; pp 7½*; 50c.

——— *A Modern Plant for Making Coke.* [Describes how coke and by-products are made on a commercial scale].—I. Tr. Rev. Sept. 14 1916; p 515; pp 1½*; 25c.

——— *Boilers Heated by Coke-Oven Gas.* [Drawings of installations are shown and method of operation described].—I. & C. Tr. Rev. Aug. 25 1916; p 213; pp 3⅛*; 35c.

——— *Boilers Heated by Coke-Oven Gas.* [On equipment and installations for following this practice. Drawings are given with description].—I. & C. T. Rev. Sept. 8 1916; p 280; pp 1⅛*; 35c.

——— *Coke Production for Nine Months of 1916.* [From the Connellsville Courier].—Coal Tr. Bull. Nov. 1 1916; p 27; pp 1¾; 25c.

——— *New Coal Washery, Coke Ovens and By-Product Plant at Risca Colliery, England.* [Contains a supplement sheet with line drawings and views of the plant].—I. & C. Tr. Rev. Dec. 1 1916; p 663; pp 5*; 35c.

——— *Thrislington Colliery's New Coking and By-Product Plant, Durham, England.*—I. & C. Tr. Rev. June 23 1916; p 717; pp 1*; 35c.

PEAT

Anrep, Aleph.—*Investigation of the Peat Bogs and Peat Industry of Canada,* 1913-1914. Each bog-area is described separately and grouped by provinces in which they are located. Notes on foreign peat production are given].—Canada Dept. of Mines, Mines Branch Bull. 11; pp 185*.

Condict, G. Herbert.—*Is Dewatering*

Peat by Machinery Commercially Practicable.—Jnl. Amer. Peat Soc. Oct. 1916; p 204; pp 2; $1.60.

Huels, Frederick William.—*The Peat Resources of Wisconsin.* [Abstract of Bulletin 45 of the Wisconsin Geol. Surv., in which the nature of the beds and properties of the peat found in the several localities is given].—Jnl. Amer. Peat Soc. Oct. 1916; p 237; pp 12; $1.60.

Irinyi, Arnold. — *Die Physikalisch-chemischen Vorgänge bei Verdampfung von Heizöl mit Besondered Rücksicht auf die Verwendung von Oelfeuerungen in Giesserei-Oefen.* [On the physical and chemical properties and changes of oil burned in metallurgical furnaces].—Petroleum Oct. 7 1914; p 9; pp 5½; 60c.

Lisitzin, Fr.—*Russian Peat Industry.* [Gives the results of the analyses of many samples].—Jnl. of American Peat Soc. July 1916; p 138; pp 3.

Morgan, G. T.—*Some Chemical Aspects of the Peat Problem.* [Reprint from the Irish Technical Jnl. Treats on the using of this resource for making gas and ammonia products].—Jnl. of American Peat Soc. July 1916; p 141; pp 10*.

Smith, Sumner S.—*The Cache Creek Dredge, Alaska.* [Describes the dredge, its fuel question and the handling of the gravel from the dredge in recovering the gold].—M. & S. P. Dec. 23 1916; p 908; pp 2*; 20c.

——— *Bacterized Peat.* [Treats on the relation of bacteria to the formation of peat].—Jnl. Amer. Peat Soc. Oct. 1916; p 201; pp 2¼; $1.60.

——— *Jameson-Wet Carbonizing, Ltd., Patent Lawsuit.* [Much of the discussion is of interest in regards to dewatering peat in general].—Jnl. of American Peat Soc. July 1916; p 151; pp 14.

MISCELLANEOUS FUELS

Cooper, Stanley, G.—*The Production and Use of Power and Its Relation to Fuel Economy.*—I. & C. Tr. Rev. June 30 1916; p 743; pp 1½*; July 14 1916; p 44; pp 1*; 70c.

Emley, W. E.—*The Comparative Values of Different Kinds of Fuels for Lime Burning.* [Specific data and information are included in the description].—National Lime Mfg. Bull. 22; pp 6; 25c.

Frey, W. P.—*Modern Practice in Fuel Briquetting.* [Describes a plant operating successfully and using petroleum residuum for a binder or cementing material].—Coal Age Dec. 9 1916; p 960; pp 3¾*; 20c.

Gadd, C. J.—*Empleo de Carbon Pulverizado Para el Caldeo de los Hornos Siderurgicos.* [Abst. from the Jnl. of the Franklin Inst. on the use of powdered coal for fuel].—Revista Minera Aug. 8 1916; p 380; pp 3¾*; 35c.

Gadd, C. J.—*The Use of Powdered Coal in Metallurgical Processes. A Discussion of the Principles Involved.* [A paper read before the Mining and Metallurgical Section].— Jnl. of Franklin Inst. Sept. 1916; p 323; pp 39*; 60c.

Haas, Herbert.—*Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Compares the advantages and costs of operating each with respect to generating electricity. Details on fuel costs are given].—Bull. A. I. M. E. July 1916; p 1171; pp 13*; 35c.

Johnson, J. E., Jr.—*Blast Furnace Irregularities and Their Treatment.* [Tells of remedies for and discusses many things unusual in furnace operation, such as a chilled hearth].—Met. & Chem. Engg. July 15 1916; p 69; pp 8*; 30c.

Johnson, J. E., Jr.—*The Rate of Driving the Blast Furnace.* [The effects resulting from too slow or fast a rate are discussed in detail in particular on the power requirements for blowing and fuel consumption].—Met. & Chem. Engg. July 1 1916; p 21; pp 4¾*; 30c.

Peabody, E. H.—*Oil Fuel.* [A paper read before the International Engineering Congress].—Pract. Eng. July 15 1916; p 607; pp 6¾; 20c.

Peabody, Ernest H.—*Oil Fuel.* [On the use of forced draft and blowers in using oil fuel for generating steam].—Pract. Eng. Sept. 1 1916; p 737; pp 2¾*; 20c.

Pope, George S.—*Methods of Sampling Delivered Coal.* [Methods of sampling used in the government purchase of coal].—U. S. Bur. of Mines Bull. 116; pp 64*; 25c.

Smith, E. B.—*Efficiency of Shaking Grates as Applied to Lime Kilns.* [Details and drawings bringing out the use of this grate are given].—National Lime Mfg. Assn. Bull. 10; pp 10*.

——— *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables]. — McGraw-Hill Co.; book; pp 1172*; $4.

——— *Cost of Coal and Oil as Fuel.* [Abst. from Power. The cost of steam per pound is given, with the evaporation per pound of coal and B. T. U. per gallon of oil].—E. & M. J. July 8 1916; p 93; pp 1¾*; 25c.

——— *Description of the Laboratories of the Mines Branch of the Department*

of Mines, Ottawa, Ontario. [Laboratories for investigating fuels, milling and metallurgical processes, ceramics, metallography, etc., are described in detail].—Canada Mines Branch Bull. 13; pp 111*.

——— *Oil Fuel.* [On methods of pumping and piping the oil to the burners].—Pract. Eng. Aug. 1 1916; p 648; pp 1¾*; 20c.

——— *Smokeless Fuel, Gas, Oil and Ammonia Production.* [A description of equipment used and some details on the methods of operation].—I. & C. Tr. Rev. July 7 1916; p 10; pp 2*; 35c.

CHAPTER X.

Petroleum, Natural Gas, Etc.

PETROLEUM

Arnold, Ralph.—*Conservation of the Oil and Gas Resources of the Americas.* [Reviews the deposits and possibilities of each country separately].—Eco. Geol. June 1916; p 299; pp 28; 60c.

Bacon, Raymond F.; Hamor, William A.—*The American Petroleum Industry.* [In Vol. I the history and geology, etc., regarding oil wells is taken up, while Vol. II is on refining of oil].—McGraw-Hill Co.; books; Vol. I pp 446*; Vol. 2 pp 517*; $5 each.

Ball, L. C.—*Oil Shales in the Port Curtis District, Queensland, Australia.*—Queen. Geol. Surv. Report.

Ball, Max W.—*Adequate Acreage and Oil Conservation.* [This discussion of situations applies to natural gas as well as oil].—American Mg. Cong. Paper; pp 12; 35c.

Ball, Max W.—*Petroleum Withdrawals and Restorations Affecting the Public Domain.* [Gives the law controlling petroleum lands, with information on withdrawals and restorations. Maps, by states, are given, showing the areas affected].—U. S. G. S. Bull. 623; pp 425; $1.20.

Bearce, H. W.; Peffer, E. L.—*Density and Therman Expansion of American Petroleum Oils.*—U. S. Bur. of Stand. Tech. Paper 77; pp 26*; 20c.

Boulton, W. S.—*Geology and Petroleum Resources.* [Abst. from the presidential address to the Geological Section of the British Assn.].—Petro. World Oct. 1916; p 489; pp 2¼; 35c.

Bowie, C. P.—*Construction and Operation of a Single-Tube Cracking Furnace for Making Gasoline.* [Contains drawings and details, besides information for operation of the furnace].—U. S. Bur. of Mines Tech. Paper 161; pp 16*; 20c.

Brokaw, Albert D.—*Preliminary Oil Report on Southern Illinois.* [Describes areas tested and the geology of the formation with respect to oil deposits].—Ills. Geol. Surv. Bull. 35; pp 13*.

Cameron, W. E.—*Petroleum and Natural Gas Prospects at Roma, Queensland.*—Queen. Geol. Surv. Report.

Conkling, Richard A.—*The Influence of the Movement of Shales on the Area of Oil Production.*—Bull. A. I. M. E. Nov. 1916; p 1969; pp 4*; 35c.

Cox, Thomas.—*Methods and Costs of Producing Crude Petroleum in California.* [Details are given, with both tables, description and curves].—West. Engg. Sept. 1916; p 347; pp 6½*; 25c.

Daly, M. R.—*The Diastrophic Theory.* [A study and discussion of the theory as regards the mechanics of oil and natural gas accumulations].—Bull. A. I. M. E. July 1916; p 1137; pp 21*; 35c.

De Beque, G. R.—*The Bituminous-Shale Industry in Northwestern Colorado.* [Brief description of activities with respect to treating the shale for its oil and a more detailed description of the geology of the formation].—E. & M. J. Dec. 9 1916; p 1011; pp 1¾*; 25c.

Deustua, Ricardo A.—*La Industria del Petroleo en el Peru Durante 1915.* [A paper read before the Pan-American Congress on the petroleum industry in Peru in 1915].—Inf. y Mem. Soc. Ing. Peru June 1916; p 117; pp 34*; 75c.

Dominian, Leon. — *Fuel in Turkey.* [Coal and petroleum are reviewed separately by the places in which they occur. The production, location and nature of the deposits are given].—Bull. A. I. M. E. June 1916; p 1011; pp 20*; 35c.

Du Toit, Alex. L.—*Report on the Oil-Shales in Impendhle County, Natal, South Africa.* [Part of a report of a Geol. Survey Memoir].—S. Afr. Mg. Jnl. Oct. 28 1916; p 193; pp 2; 35c.

Egloff, G.; Twomey, T. J.; Moore, Robert J.—*The Effect of Temperature and the Time Factor in the Formation of Gasoline in the Gas Phase at Constant Pressure.* [The testing was mostly done with a Pennsylvania crude petroleum oil].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1102; pp 3¼*; 60c.

Egloff, G.; Twomey, T. J.—*The Formation of Aromatic Compounds from the Cracking of a Gas Oil.* [This kind of oil is found in Pennsylvania].—Met. & Chem. Engg. July 1 1916; p 15; pp 2¾*; 30c.

English, Walter A.—*Geology and Oil Prospects of Cuyama Valley, California.* [On the geological structure with respect to oil possibilities].—U. S. G. S. Bull. 621-M; pp 25*.

Fath, A. E.—*An Anticlinal Fold Near Billings, Noble County, Oklahoma.* [The geology and formation of the anticline is described relative to the possibilities of oil and gas, which is found 20 miles from

the anticline].—U. S. G. S. Bull. 641-E; pp 18*.

Forbes-Leslie, William.—*The Norfolk Oil Shales.* [A paper read before the Inst. of Petroleum Technologists, England. In England and Scotland oil is found mostly in these shales and similar formation].—Petro. World Nov. 1916; p 525; pp 5; 35c.

Galpin, S. L.—*Petroleum Engineering.* [A talk on what are the duties of a petroleum engineer].—Iowa Eng. Nov. 1916; p 45; pp 4; 25c.

Hamilton, Fletcher.—*California's Water Infiltration Law.* [In regard to the infiltration of oil-sands with water].—Mg. Cong. Jnl. Oct. 1916; p 131; pp 4; 35c.

Hamilton, W. R.—*The California Gasoline Industry.*—Bull. A. I. M. E. June 1916; p 1073; pp 5; 35c.

Hares, C. J.—*Anticlines in Central Wyoming.* [This area of 5000 square miles was investigated with regard to the possibilities of oil, but is located between Casper and Lander, contiguous to which city oil is now being produced].—U. S. G. S. Bull. 641-I; pp 47*.

Hennion, Charles.—*The New Baicoi Field of Roumania.* [Describes activities and current events in the field].—Petro. World Aug. 1916; p 375; pp 2; 35c.

Hopkins, Oliver B.—*Structure of the Vicksburg-Jackson Area, Mississippi.* [Geologic review of the area, bringing features showing the possibilities of oil and gas].—U. S. G. S. Bull. 641-D; pp 28*.

Johnson, R. H.; Huntley, L. G.—*Principles of Oil and Gas Production.* [Treats on the nature and genesis of the deposits, methods of drilling and prospecting, methods of operating and last an economic geological review of oil and gas].—Wiley & Sons; book; pp 371*; $3.75.

Jimenez, Carlos P.—*Estadistica Minera en 1914, Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150.

Kobbé, William H.—*Problems Connected with the Recovery of Petroleum from Unconsolidated Sands.* [Details for the opening up of such oil deposits are given in detail].—A. I. M. E. Bull. Dec. 1916; p 2253; pp 24*; 35c.

Krebs, Charles E.; Teets, D. D., Jr.; White, I. C.—*County Reports of Raleigh and the Western Portions of Mercer and Summers Counties, West Virginia.* [An account of the geology, mineral deposits and operations].—W. Va. Geol. Surv. Report; pp 778*.

Lee, Wallace.—*Geology of the Kentucky Part of the Shawneetown Quadrangle.* [The economic deposits are composed of coal, oil, lead, zinc and clay].—Kentucky Geol. Surv.; pp 73.

Lewis, James O.; McMurray, W. F.—*The Use of Mud-Laden Fluid in Oil and Gas Wells.* [Describes the system and other methods of details in drilling for the purpose of stopping waste of gas in drilling for oil wells].—U. S. Bur. of Mines Bull. 134; pp 86*; 25c.

Lowell, F. L.—*Mines and Mineral Resources of Del Norte, Humboldt and Mendocino Counties, California.* [Reviews operations in detail, locates separate deposits and describes them].—Calif. Mg. Bur.; pp 59*.

Mabery, C. F.—*The Relations of Chemical Composition of Petroleum to Its Genesis and Geologic Occurrence.* [A detailed discussion of the subject from a practical and theoretical view point].—Eco. Geol. Sept. 1916; p 511; pp 17; 60c.

McCoy, A. W.—*Some Effects of Capillarity on Oil Accumulation.* [A paper read before the Geologic Conference of Oklahoma. It deals with the porosity of rocks and the attended capillary attraction as affecting oil deposits].—Jnl. of Geol. Dec. 1916; p 798; pp 8*; 75c.

McLaughlin, R. P.; Bradley, Walter C.; Brown, G. Chester; Lowell, F. L.—*Mines and Mineral Resources of Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin and Stanislaus Counties, California.* [Operations are included in separately describing mines, plants and unworked deposits].—Calif. Mg. Bur.; pp 220*.

McMurray, W. F.; Lewis, James O.—*Underground Wastes in Oil and Gas Fields and Methods of Prevention.* [On the prevention of conditions which reduce production, such as allowing water to enter the sand strata, etc.].—U. S. Bur. of Mines Tech. Paper 130; pp 28*.

Merrill, Frederick J. H.—*Geology and Mineral Resources of San Diego and Imperial Counties.* [Though gold is the principal metal mined, considerable is done in the non-metallic industry].—Calif. Mg. Bur.; pp 113*.

Murphy, S. J.—*A Submarine Pipe Line Across the Atlantic.* [A scheme for the under-sea transportation of oil and similar liquids].—Petro. World Nov. 1916; p 530; pp 2½*; 35c.

Northrop, John D.—*Petroleum in 1915.* [A review is made of the industry with respect to United States as a whole and separate reviews are made of the indus-

try in each state, besides fields in foreign countries].—Min. Res. U. S. II:27; pp 202.

Ohren, D. W.; Garrett, R. E.—*Ponca City Oil and Gas Field, Oklahoma.* [The geology, production and other items related to the field are spoken of and it is contended that many of the wells thought dry are not].—Okla. Geol. Surv. Bull. 16; pp 30*.

Ortega, Pablo.—*Boletin De Minas, Cuba.* [Reviews the operations and production of the mines, mostly in the province of Pinar del Rio. The nature of the deposits and mines of the various companies are described. Several tables of statistics are given in the concluding pages].—Secretaria de Agricultura, Comercio y Minas, Bull. No. 1; pp 157*.

Rakuskin, M. A.—*Ueber die Fortschritte der Naphthologie in Russland im Jahre,* 1913. [On the oil industry in Russia in 1913, including the production of by-products from petroleum].—Petroleum Oct. 21 1914; p 57; pp 4½; Nov. 4 1914; p 98; pp 3½; $1.20.

Reger, David B.—*The Possibility of Deep Sand Oil and Gas in the Appalachian Geo-Syncline of West Virginia.*—Bull. A. I. M. E. Sept. 1916; p 1709; pp 16*; 35c.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Smith, Warren D.—*Oil Fields of Tayabas Peninsula, Philippine Islands.* [An account of the oil possibilities in the Philippines].—Oil Age Sept. 1916; p 9; pp 2; 35c.

Stebinger, Eugene.—*Possibilities of Oil and Gas in North-Central Montana.* [Reviews the geologic structure and formation similar to that of other nearby fields].—U. S. G. S. Bull. 641-C; pp 43*.

Stratford, C. W.—*The Refining of Pennsylvania Crude Oil.* [General principles as applied in the different departments are given].—Petro. World Oct. 1916; p 472; pp 3¼*; 35c.

Taylor, W. G.—*Motor Equipment for Petroleum Recovery.* [A paper read before the American Inst. of Elect. Eng. Deals with the use of induction motors in drilling, pumping, and cleaning oil wells].—Elect. Rev. & West. Elect. Aug. 5 1916; p 232; pp 5½*; 20c. West. Engg. Oct. 1916; p 377; pp 1*; 20c.

Taylor, W. G.—*Oil Well Motor Equipment.* [A paper read before the American Inst. of Elect. Eng. Gives the electrical power and equipment needed in drilling an oil well].—Jnl. of Elect. Power & Gas July 1 1916; p 6; pp 2½*; 35c.

Winchester, Dean E.—*Oil Shale in Northwestern Colorado and Adjacent Areas.* [Detailed geologic descriptions of the various formations and tabulated data regarding the nature of the same, as ascertained from drilling, etc., is included].—U. S. G. S. Bull. 641-F; pp 60*.

——— *Argentine Oil Industry Reconstituted.* [On laws, costs of operation, etc.].—Petro. World Oct. 1916; p 479; pp 1¼; 35c.

——— *Baku Russian Petroleum.* [A review of operations and production in the district].—Petro. World Sept. 1916; p 426; pp 3; 35c.

——— *Baku Russian Petroleum Co., Russia.*—Petro. World Sept. 1916; p 426; pp 3; 35c.

——— *Chinese Mineral Industry in* 1915. [A review of the production of refined metals].—July 8 1916; p 477; pp ¾; 35c.

——— *Chlorination Aided by Actinic Light.* [Speaks of chlorination with respect to hydro-carbons and other petroleum products].—Mg. World Sept. 16 1916; p 506; pp 1*; 10c.

——— *Die Petroleumindustrie Russlands im Jahre,* 1913. [The petroleum industry and production in Russia in 1913].—Petroleum Oct. 7 1914; p 14; pp 2; 60c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *New Safety Method for Drilling Tools.* [These tools have recently been invented with the idea of helping to prevent their loss in the hole].—Petro. World July 1916; p 313; pp 2*; 35c.

——— *New Under-Reamer Efficient.* [A device for use in oil-well drilling].—Oil Age Aug. 1916; p 9; pp 1½*; 35c.

——— *Novel Method of Trapping Gas from an Oil Well.* [Reprinted from Oil News, which describes the building of a concrete dome over an oil well of the Mexican Eagle Co., for recovering the gas].—Petro. World Sept. 1916; p 416; pp 1½*; 35c.

——— *Oil in the European War Zone.* [An account of the industry in the several belligerent nations].—Petro. World Nov. 1916; p 520; pp 2¾; 35c.

——— *Oil Prospects in Ecuador.* [A general review of the industry in that country].—Calif. Derrick Sept. 1916; p 3; pp 1¼; 30c.

——— *Outlook in the Galician Oil Industry.* [Discusses several items affecting the industry].—Petro World Aug. 1916; p 369; pp 1¾; 35c.

——— *Pipe-Line Transportation of Petroleum.* [Full financial, cost, construction and operation accounts of various pipe lines in U. S. are given].—U. S. Federal Trade Commission Report; pp 467*.

——— *Possibilities of Wyoming Field.* [In speaking of the possibilities of the oil fields in the state considerable history regarding them is brought out].—Cal. Derrick Nov. 1916; p 3; pp 1¼; 25c.

——— *Russian Petroleum Company.* [Discusses operations for part of 1916, including profits, production and deep drilling].—Petro. World Sept. 1916; p 431; pp 3; 35c.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

——— *The Diastrophic Theory.* [Discussion of a paper by Marcel R. Daly with respect to the genesis of oil and gas deposits from an organic origin].—A. I. M. E. Bull. Dec 1916; p 2204; pp 7; 35c.

——— *Trapping Gas from Oil Well.* [On a novel method for accomplishing the same].—Petro. World Sept. 1916; p 416; pp 2*; 35c.

——— *War Laws About Oil in Galicia.* [The Austrian government's steps to increase production and development].—Petro. World Oct. 1916; p 476; pp 1½; 35c.

NATURAL GAS

Arndt, R.—*The Natural Gas Industry of Hungary.* [Abst. from Vossische Zeitung].—Petro. World Aug. 1916; p 367; pp ¾; 35c.

Arnold, Ralph.—*Conservation of the Oil and Gas Resources of the Americas.* [Reviews the deposits and possibilities of each country separately].—Eco. Geol. June 1916; p 299; pp 28; 60c.

Ball, Max W.—*Adequate Acreage and Oil Conservation.* [This discussion of situations applies to natural gas as well as oil].—American Mg. Cong. Paper; pp 12; 35c.

Cameron, W. E.—*Petroleum and Natural Gas Prospects at Roma, Queenstand.*—Queen. Geol. Surv. Report.

Clapp, F. G.—*Principles of Natural Gas Leasehold Valuation.* [Discussion of a paper by S. S. Wyer].—A. I. M. E. Bull. Dec. 1916; p 2228; pp 3; 35c.

Daly, M. R.—*The Diastrophic Theory.* [A study and discussion of the theory as regards the mechanics of oil and natural gas accumulations].—Bull. A. I. M. E. July 1916; p 1137; pp 21*; 35c.

Fath, A. E.—*An Anticlinal Fold Near Billings, Noble County, Oklahoma.* [The geology and formation of the anticline is described relative to the possibilities of oil and gas, which is found 20 miles from the anticline].—U. S. G. S. Bull. 641-E; pp 18*.

Hines, Richard P.—*Natural Gas Operating Coal Mines.* [Speaks of a central gas-power station of the Consolidated Coal Co., W. Va., and the distribution of the electricity from this station to the mines].—C. Tr. Bull. Oct. 2 1916; p 34; pp 1¾; 25c.

Hopkins, Oliver B.—*Structure of the Vicksburg-Jackson Area, Mississippi.* [Geologic review of the area, bringing features showing the possibilities of oil and gas].—U. S. G. S. Bull. 641-D; pp 28*.

Krebs, Charles E.; Teets, D. D., Jr.; White, I. C.—*County Reports of Raleigh and the Western Portions of Mercer and Summers Counties, West Virginia.* [An account of the geology, mineral deposits and operations].—W. Va. Geol. Surv. Report; pp 778*.

Lewis, James O.; McMurray, W. F.—*The Use of Mud-Laden Fluid in Oil and Gas Wells.* [Describes the system and other methods of details in drilling for the purpose of stopping waste of gas in drilling for oil wells].—U. S. Bur. of Mines Bull. 134; pp 86*; 25c.

McLaughlin, R. P.; Bradley, Walter C.; Brown, G. Chester; Lowell, F. L.—*Mines and Mineral Resources of Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin and Stanislaus Counties, California.* [Operations are included in separately describing mines, plants and unworked deposits].—Calif. Mg. Bur.; pp 220*.

McMurray, W. F.; Lewis, James O.—*Underground Wastes in Oil and Gas Fields and Methods of Prevention.* [On the prevention of conditions which reduce production, such as allowing water to enter the sand strata, etc.].—U. S. Bur. of Mines Tech. Paper 130; pp 28*.

Ohren, D. W.; Garrett, R. E.—*Ponca City Oil and Gas Field, Oklahoma.* [The geology, production and other items related to the field are spoken of and it is contended that many of the wells thought dry are not].—Okla. Geol. Surv. Bull. 16; pp 30*.

Reger, David B.—*The Possibility of Deep Sand Oil and Gas in the Appalachian*

Geo-Syncline of West Virgina.—Bull. A. I. M. E. Sept. 1916; p 1709; pp 16*; 35c.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Shaw, Eugene W.; Matson, George C.; Wegemann, Carrol H.—*Natural Gas Resources of Parts of North Texas.* [Describes the geology and the various operating fields, with some of the various methods they employ].—U. S. G. S. Bull. 629; pp 129*.

Toso, Pietro.—*Sul Modi di Formaziene dei Giacimenti Petroliferi e Solfiferi.* [On the method of formation of petroliferous and sulphurous materials].—Ind. Chim. Min. & Met. June 10 1916; p 177; pp 5; June 25; p 193; pp 3¾*; 70c.

Wade, Arthur.—*Petroleum Prospects on Bruny Island, Tasmania.* [Deals with the geology and possibilities there].—Tasmania Parliament Report No. 60; pp 6*; 50c.

Way, Herbert, W. L.—*The Minerals of Sze-Chuan, China.* [Brief descriptions of the deposits, their possibilities and operation. Salts have been mined, petroleum is plentiful and gold, silver and copper give promise].—Mg. Mag. July 1916; p 20; pp 4*; 50c.

Wolf, Fred L.; Burr, Robert B.—*Tests of Natural Gas Fired, Brass Melting Furnaces Under Factory Operating Conditions.*—Trans. American Inst. of Metals Vol. IX; p 343; pp 24*; 35c.

Wyer, Samuel S.—*Valuation of Natural Gas Rights.* [A paper to be read before the A. I. M. E. on the economic value of leaseholds on gas land].—I. Tr. Rev. Aug. 10 1916; p 267; pp 4; 25c.

Zanetti, J. E.; Leslie, E. H.—*The Therman Decomposition of the Ethane-Propane Fraction from Natural Gas Condensate.*—Jnl. Ind. & Engg. Chem. Sept. 1916; p 777; pp 2*; 60c.

——— *Novel Method of Trapping Gas from an Oil Well.* [Reprinted from Oil News, which describes the building of a concrete dome over an oil well of the Mexican Eagle Co., for recovering the gas].—Petro. World Sept. 1916; p 416; pp 1½*; 35c.

——— *The Diastrophic Theory.* [Discussion of a paper by Marcel R. Daly with respect to the genesis of oil and gas deposits from an organic origin].—A. I. M. E. Bull. Dec. 1916; p 2204; pp 7; 35c.

BITUMENS

Bacon, Raymond F.; Hamor, William A.—*The American Petroleum Industry.* [In Vol. I the history and geology, etc., regarding oil wells is taken up, while Vol. II is on refining of oil].—McGraw-Hill Co.; books; Vol. I pp 446*; Vol. II pp 517*; $5 each.

De Beque, G. R.—*The Bituminous-Shale Industry in Northwestern Colorado.* [Brief description of activities with respect to treating the shale for its oil and a more detailed description of the geology of the formation].—E. & M. J. Dec. 9 1916; p 1011; pp 1¾*; 25c.

Du Toit, Alex. L.—*Report on the Oil-Shales in Impendhle County, Natal, South Africa.* [Part of a report of a Geol. Survey Memoir].—S. Afr. Mg. Jnl. Oct. 28 1916; p 193; pp 2; 35c.

Forbes-Leslie, William.—*The Norfolk Oil Shales, England.* [From a paper read before the Inst. of Petro. Tech. describing the geology of the several formations].—Coll'y Guard. Nov. 3 1916; p 853; pp 1½; 35c.

Northrop, John D.—*Asphalt, Related Bitumens and Bituminous Rock in* 1915. [Reviews the production and industry for United States and foreign countries].—Min. Res. of U. S. II:13; pp 16.

Steuart, D. R.—*The Shale Oil Industry in England.*—Jnl. Soc. of Chem. Ind. July 31 1916; p 774; pp 2½; 50c.

Winchester, Dean E.—*Oil Shale in Northwestern Colorado and Adjacent Areas.* [Detailed geologic descriptions of the various formations and tabulated data regarding the nature of the same, as ascertained from drilling, etc., is included].—U. S. G. S. Bull. 641-F; pp 60*.

CHAPTER XI.

Structural and Ceramics.

BRICK AND TILE

Kelley, W. H.—*Fire Brick for the Lime Kiln.* [A talk on the uses and properties of different brick used in different plants]. —National Lime Mfg. Bull. 21; pp 5; 25c.

Middleton, Jefferson. — *Clay-Working Industries and Building Operations in the Larger Cities in* 1915. [Reviews the production and operations of clay pits and brick manufactures by states and the entire industry for the United States].—Min. Res. U. S. II:30; pp 68.

Nesbit, C. E.; Bell, M. L.—*Testing Refractory Fire Brick.* [Abstract of a paper read before the American Soc. for Testing Materials].—E. & M. J. Dec. 2 1916; p 967; pp ¾; 25c.

Sweely, B. T.—*Porous Brick by Use of Sawdust.* [It is pointed out that these bricks are satisfactory for heat insulation work, and can be manufactured by the user of the brick].—B. & C. Rec. Nov. 21 1916; p 906; pp 1¼; 35c.

West, John.—*Silica and Fireclay Materials.* [A paper read before the Manchester District Institution of Gas Eng. Gives analyses of the composition of several bricks and describes the making of the same].—I. & C. Tr. Rev. June 16 1916; p 691; pp 1*; 35c.

CEMENT

Brantly, J. E.—*A Report on the Limestones and Marls of the Coastal Plain of Georgia.* [The geology of the formation and descriptions of deposits by counties. The uses and preparation of the rock are also given].—Georgia Geol. Surv. Bull. No. 21; pp 300*.

Burchard, Ernest F.—*Cement in* 1915. [Takes up different phases of the market separately and gives curves in some instances, with the production in each case]. Min. Res. of U. S. II:16; pp 24.

Burchard, Ernest F.—*Potash as a By-Product in the Cement and Iron Industies.* [Abst. from the Manufacturer's Record. Consists of some details in a general discussion and review of the subject].—Chem. Eng. & Mfg. Sept. 1916; p 104; pp 4; 30c.

Campbell, Edward D.—*Some Slow Volume Changes in Portland Cement.* [Treats on the subject from the point of view that free lime and magnesia cause dangerous expansion in Portland cement].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1101; pp 1¾; 60c.

Diekman, P.—*Chemistry of Portland Cement.* [Abst. from the Jnl. of the American Soc. of Mechanical Engineers]. —Met. & Chem. Engg. July 1 1916; p 41; pp 1½; 30c.

Findlay, D. C.—*Electrification of a Modern Cement Plant.* [A description of the Oregon Portland Cement Co.'s plant]. —Jnl. of Elect. Power & Gas Sept. 16 1916; p 218; pp 2*; 35c.

Pierce, Edwin G.—*The Determination of Sulphuric Anhydrid in Portland Cement Analysis.* [Complete description of a method].—Chem. Eng. & Mfg. Aug. 1916; p 62; pp 1¾*; 30c.

Stone, Ralph W.—*Gypsum in* 1915. [Reviews the uses, methods of refining and production].—Min. Res. of U. S. II:14; pp 9.

——— *Mason City, Iowa, Plant of the Northwestern States Portland Cement Co.*—Chem. Eng. & Mfg. July 1916; p 6; pp 1¾; 30c.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

——— *Utilization of Shells in Manufacture of Portland Cement—Plant of Texas Portland Cement Co.*—Chem. Eng. & Mfg. Aug. 1916; p 60; pp 1¼*; 30c.

CLAYS AND CERAMICS

Arbogast, C. O.; Sheridan, L. J.—*Throwing the Searchlight on the Clay Plant Pyrometer.* [A description of the pyrometer and its uses].—B. & C. Rec. July 18 1916; p 123; pp 3½*; Aug. 1 1916; p 216; pp 5; Aug. 15 1916; p 310; pp 2*; $1.05.

Clapp, Charles H.—*Geology of the Nanaimo Map-Area.* [The area is on Vancouver island, British Columbia. Coal is the main product, though sand and gravel, clay and stone are also produced]. —Canada Geol. Surv. Memoir 51; pp 135*.

Darton, N. H.—*Geology and Underground Water of Luna County, New Mexico.* [A very complete description of the geologic formation].—U. S. G. S. Bull. 618; pp 188*.

Farnham, Dwight T.—*The Application*

of Scientific Management to Burning Clay. [Discusses methods for keeping tract of the results of operations under varying conditions].—B. & C. Rec. Sept. 5 1916; p 403; pp 5*; 35c.

Greaves-Walker, A. F.—*The Path to Success in Operating a Continuous Coal-Fired Tunnel Kiln.*—B. & C. Rec. July 4 1916; p 27; pp 2½*; 35c.

Greaves-Walker, A. F.—*Testing Clay Properties.* [Deals with methods of sampling and determining the value of a clay deposit in the field].—B. & C. Rec. Dec. 19 1916; p 1083; pp 3*; 35c.

Greaves-Walker, A. F.—*The Operation of a Producer Gas Fired Chamber Kiln.* —B. & C. Rec. Oct. 3; p 595; pp 3½*; Oct. 17 1916; p 711; pp 2½*; 70c.

Greaves-Walker, A. F.—*"Tight Bolt" Setting in Up-Draft Kilns.* [A method little used in this country, but which saves labor, produces more even burns and eliminates kiln markings].—B. & C. Rec. Sept. 19 1916; p 510; pp 2¼*; 35c.

Harger, F. D.—*Gas Analysis Applied to Brick Kilns.* [With the results of analysis and tests, utilization of waste heat and kiln economy are dealt with].—B. & C. Rec. Nov. 7 1916; p 803; pp 3; 35c.

Huac, A. J.—*Cost Accounting for the Clay Plant.* [A series of articles, including forms, tables and description for a complete cost accounting system].—B. & C. Rec. Aug. 15 1916; p 307; pp 3; Sept. 5 1916; p 417; pp 2½; Sept. 19 1916; p 513; pp 1½*; Oct. 3; p 598; pp 1½*; Oct. 17 1916; p 709; pp 1½*; Nov. 7 1916; p 806; pp 2*; Nov. 21 1916; p 901; pp 2*; Dec. 5 1916; p 994; pp 3½*; $2.45.

Libman, Earl E.—*Kiln Arches.* [Theory, discussion and formulas for figuring the properties and design of kiln arches]. —B. & C. Rec. Nov. 7 1916; p 798; pp 4½*; 35c.

Middleton, Jefferson. — *Clay-Working Industries and Building Operations in the Larger Cities in* 1915. [Reviews the production and operations of clay pits and brick manufactures by states and the entire industry for the United States].—Min. Res. U. S. II:30; pp 68.

Middleton, Jefferson.—*Pottery in* 1915. [Treats on the production of materials used in the manufacture of pottery and the amount of pottery manufactured. The production of states is tabulated].—Min. Res. of U. S. II; pp 11.

Staley, Homer F.; Beecher, Milton F.—*Practical Handling of Iowa Clays with Application of Ceramic Principles.* [Methods of prospecting and testing the clay bodies are given, as well as descriptions of methods of manufacturing and properties of the burned product].—Iowa State College Bull. 43; pp 48*.

Stansfield, J.—*The Pleistocene and Recent Deposits of the Island of Montreal.* [The stratigraphy of the area is described in detail. Clay for red brick is the principal economic product produced].—Canada Geol. Surv. Memoir 73; pp 80*.

——— *Description of the Laboratories of the Mines Branch of the Department of Mines, Ottawa, Ontario.* [Laboratories for investigating fuels, milling and metallurgical methods, ceramics, metallography, etc., are described in detail].—Canada Mines Branch Bull. 13; pp 111*.

——— *University of Illinois, Dedication of the New Ceramic Building.* [Details of the address made].—B. & C. Rec. Dec. 19 1916; p 1094; pp 3½; 35c.

CONCRETE

Abrams, D. A.—*A Method of Making Wear Tests of Concrete.* [A paper read before the American Soc. for Testing Materials. The method, machine and results of some tests are given].—Canadian Eng. Dec. 21 1916; p 512; pp 2¼*; 35c.

Burroughs, William G.—*A Concrete Tipple in Ohio.* [A tipple for handling a moderate production, built by the Black Diamond Coal Co.].—Coal Age Nov. 25 1916; p 872; pp 1¾*; 20c.

Chace, W. G.; McLean, Douglas L.—*Studies Regarding Concrete Mixtures Employed in Construction of the Shoal Lake Aqueduct.* [A paper read before the Canadian Soc. of Civil Engineers].—Canadian Eng. Oct. 26 1916; p 331; pp 3½; 35c.

Emley, W. E.—*The Comparative Values of Different Kinds of Fuels for Lime Burning.* [Specific data and information are included in the description].—National Lime Mfg. Bull. 22; pp 6; 25c.

Gould, Harry J.—*A Simple and Efficient Cost Keeping System for Concrete Construction.* [Both forms and descriptive information are given].—Engg. & Cont. Aug. 30 1916; p 199; pp 3; 20c.

Hool, G. A.—*Reinforced Concrete Construction.* [Details on the design and construction of all types of concrete structures].—McGraw-Hill Co.; book; pp 688*; $5.

Hull, Walter A.—*Investigation of Fire Resisting Materials Particularly as Related to Limestone Concrete.* [Describes the furnaces used and gives curves and description with respect to the results of the investigations].—National Lime Mfg. Bull. 20; pp 14*; 25c.

Hunner, H. H.—*Concrete Idler Stands.* [A type constructed and used at the Isabella mine, Palmer, Mich. Some costs of construction are given].—E. & M. J. July 22 1916; p 179; pp 1*; 25c.

Kirkland, H. B.—*Pneumatic Concreting of the Van Buren Street Tunnel.* [Some tables of details are given].—Mine & Quarry Oct. 1916; p 937; pp 2½*; 20c.

Lasier, E. L.—*The Strength of Clamped Splices in Concrete Reinforcement Bars.* [Abstract of a paper read before the Am. Soc. of Testing Materials. Curves and the results and nature of tests are described].—Canadian Eng. Nov. 9 1916; p 373; pp 2¼*; 35c.

Lawrie, W. W.; Smith, G. H.—*Concrete Shaft Equipment at the Bantjes Consolidated Mines, South Africa.* [Details of construction, costs and labor are given].—Jnl. of Chem. Met. & Mg. Soc. of S. Afr. April 1916; p 202; pp 3½*; 85c.

McCullough, Ernest.—*Fundamentals of Reinforced Concrete Design.* [A lecture prepared to deliver at a short course for Manual Training and Vocational teachers].—Portland Cement Assn.; pp 18*; 35c.

McMillan, Franklin R.—*Time Tests of Concrete.* [A paper read before the Engineers' Club of St. Louis. Curves and the results of tests are given].—Canadian Eng. Sept. 14 1916; p 211; pp 4¼*; Sept. 21 1916; p 231; pp 4*; 70c.

Rossback, N. J.—*Tunnel Construction on the Mill Creek Sewer.* [Methods of operating, drilling, compressed air equipment, lining with concrete and brick, etc., are among things described].—Mine & Quarry; Oct. 1916; p 907; pp 11*; 20c.

Sherwin, R. A.—*Forms for Concrete Work.* [Abst. of a paper read before the American Concrete Inst. Details for construction and design of the same].—Canadian Eng. Aug. 17 1916; p 3¾; 35c. Western Engg. July 1916; p 261; pp 6¾; 20c.

——— *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables].—McGraw-Hill Co.; book; pp 1172*; $4.

——— *Concreting in Cold Weather.* [Various special methods to be used on work being done in cold weather].—Portland Cement Assn. Sept. 1916; pp 15*; 35c.

——— *Concreting the Sacramento Shaft, Bisbee, Arizona.* [Details of the construction, methods of doing the work and costs for materials and labor on the same are given].—M. & S. P. Oct. 7 1916; p 521; pp 8½*; 20c.

——— *Novel Method of Trapping Gas from an Oil Well.* [Reprinted from Oil News, which describes the building of a concrete dome over an oil well of the Mexican Eagle Co., for recovering the gas].—Petro. World Sept. 1916; p 416; pp 1½*; 35c.

——— *Plantas para Mezclar Hormigon.* [Large plants for concrete mixing].—Ing. & Contrista Sept. 1916; p 29; pp 6*; 35c.

——— *Recommended Specifications for Reinforced Concrete Design.* [A report of the Joint Committee on Concrete and Reinforced Concrete].—Portland Cement Assn. Nov. 1916; pp 10; 35c.

——— *Snake Creek Tunnel, Utah.* [A concrete tunnel. The construction and methods used in driving it are described].—M. & S. P. Aug. 5 1916; p 205; pp 2*; 20c.

——— *Winnipeg-Shoal Lake Aqueduct Construction.* [Included in this detailed description are sketch drawings of the work which is of reinforced concrete].—Canadian Eng. Nov. 16 1916; p 401; pp 5½*; 35c.

LIME

Brantly, J. E.—*A Report on the Limestones and Marls of the Coastal Plain of Georgia.* [The geology of the formation and descriptions of deposits by counties. The uses and preparation of the rock are also given].—Georgia Geol. Surv. Bull. No. 21; pp 300*.

Crow, W.—*Chemically Correct Hydrate of Lime on a Commercial Basis.* [Discusses the subject and has a supplement drawing of a section of the Schaffner continuous hydrator].—National Lime Mfg. Assn. Bull. 14; pp 8*.

Donaldson, R. D.—*Application of Central Station Power to Lime Plants and Quarries.*—National Lime Mfg. Assn. May 1916; pp 15.

Freeman, O. W.—*Gypsum and Lime Industry in Central Montana.* [A general description of the geology, nature and operation of the deposits, with some information on the operating properties].—Mg. World Oct. 14 1916; p 663; pp 2*; 10c.

Hull, Walter A.—*Investigations of Fire Resisting Materials, Particularly as Related to Limestone Concrete.* [Describes the furnaces used and gives curves and description with respect to the results of the investigations].—National Lime Mfg. Bull. 20; pp 14*; 25c.

Loughlin, G. F.—*Lime in* 1915. [On the uses, units of measurement and production].—Min. Res. of U. S. II:19; pp 20.

Smith, E. B.—*Efficiency of Shaking Grates as Applied to Lime Kilns.* [Details and drawings bringing out the use of this grate are given].—National Lime Mfg. Assn. Bull. 10; pp 10*.

——— *False Prophets in the Machinery Business for the Sake of False Profits.* [A talk on machinery and the lime manufacturing industry].—National Lime Mfg. Assn. Bull. 19; pp 4.

———. *The Plant of the Dolomite Products Co., Narlo, Ohio.* [The plant description includes excavating in the open-pit, on surface and haulage of the broken materials].—Excavating Eng. July 1916; p 371; pp 4*; 20c.

SAND AND GRAVEL

Clapp, Charles H.—*Geology of the Nanaimo Map-Area.* [The area is on Vancouver island, British Columbia. Coal is the main product, though sand and gravel, clay and stone are also produced].—Canada Geol. Surv. Memoir 51; pp 135*.

Stone, R. W.—*Sand and Gravel in* 1915. [Gives tabulated production by states, states in which glass-sand was produced and weight of sand and gravel per cubic yard].—Min. Rec. U. S. II; pp 13.

——— *Modern Gravel Excavation.* [A description of the operations of the John B. Rose Co.'s plant and gravel pit at Marlboro, N. Y.].—Excavating Eng. Dec. 1916; p 91; pp 2¾*; 20c.

STONE

Bowles, Oliver.—*The Technology of Marble Quarrying.* [Takes up methods of operation and accounting with a study of the mineralogical constituents of the rock which tend to vary its properties and grade].—U. S. Bur. of Mines Bull. 106; pp 174*; 40c.

Brantly, J. E.—*A Report on the Limestones and Marls of the Coastal Plain of Georgia.* [The geology of the formation and descriptions of deposits by counties. The uses and preparation of the rock are also given].—Georgia Geol. Surv. Bull. No. 21; pp 300*.

Clapp, Charles H.—*Geology of the Nanaimo Map-Area.* [The area is on Vancouver island, British Columbia. Coal is the main product, though sand and gravel, clay and stone are also produced].—Canada Geol. Surv. Memoir 51; pp 135*.

Darton, N. H.—*Geology and Underground Water of Luna County, New Mexico.* [A very complete description of the geologic formation].—U. S. G. S. Bull. 618; pp 188*.

Gillette, Halbert Powers.—*Handbook of Rock Excavation Methods and Costs.* [Details regarding the different methods used in rock excavation, as drilling, explosives, etc.].—Clark Book Co.; book; pp 835*; $5.

Hicks, H. L.—*Compressed Air at Rockland Lake Quarry, New York.* [Describes drilling and blasting operations, with some information on the general operation of the quarry].—Comp. Air July 1916; p 8035; pp 4*; 20c.

Hubbard, Prévost; Jackson, F. H., Jr.—*The Results of Physical Tests of Road-Building Rock.* [Gives nature and results of tests with location of place from which sample was obtained].—U. S. Dept. of Agric. Bull. 370; pp 100*.

Humphrey, D. E.—*Drilling and Blasting Shale Banks.* [Discusses several methods of drilling and blasting].—B. & C. Rec. Aug. 15 1916; p 319; pp 4½*; 35c.

Ries, Heinrich, — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Schultz, J. E. M.—*Central Air Plant at a Georgia Quarry.* [The quarry, compressor plant and equipment are described].—Mine & Quarry Oct. 1916; p 924; pp 5*; 20c.

Wagner, P. A.—*Economic Geology and Mineral Industry of Southwest Africa.*—S. Afr. Mg. Jnl. July 1 1916; p 311; pp 1; 35c.

CHAPTER XII.

Other Non-Metals.

ABRASIVES

Katz, F. J.—*Abrasive Materials in* 1915. [Each material is reviewed separately].—Min. Res. of U. S. II:10; pp 16.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

ACIDS

Carnell, W. C.—*Acid Resisting Alloys.* [A paper read before the American Inst. of Chem. Eng. Deals with the properties of duriron, tantiron and the like].—Iron Age July 27 1916; p 182; pp 1¼; 30c.

Fairlie, Andrew M.—*The Control of the Chamber Process for Making Sulphuric Acid.* [A paper read before the American Chem. Soc.].—Amer. Fertilizer Dec. 23 1916; p 21; pp 3; 25c.

Gilbert, J.—*Costs and Profits of an Up-to-Date Spelter Works.* [A practical consideration of the subject and operations connected therewith].—Mg. Jnl. July 15 1916; p 496; pp 1¾; 35c.

Harris, T. N.—*New Sulphuric Acid Plant.* The construction and method of manufacture used by the U. S. Steel Corporation at its plant at Donora, Pa.].—Met. & Chem. Engg. Sept. 15 1916; p 313; pp 5¾*; 35c.

Ingalls, W. R. — *The Donora Zinc Works, Pennsylvania.* [A description of the plant, its equipment and operation].—E. & M. J. Oct. 7 1916; p 648; pp 7*; 25c.

Mason, F. H.—*Synthetic Nitric Acid.* [A general review of theory and practice in manufacturing].—M. & S. P. Aug. 19 1916; p 265; pp 2; 20c.

Parr, S. W.—*The Development of an Acid Resisting Alloy.* [The alloy contains nickel and chromium, with many other ingredients in small quantities].—Trans. American Inst. of Metals Vol. IX; p 211; pp 7*; 35c.

Phalen, W. C.—*Sulphur, Pyrite and Sulphuric Acid in* 1915. [A review of production and conditions, including some foreign countries].—Min. Res. U. S. II: 22; pp 16.

Stander, H. J.—*The Function of Oil and Acid in Flotation.* [Describes tests and theory, bringing out the principles underlying flotation].—Mg. World Aug. 19 1916; p 317; pp 3¼*; 10c.

Swindin, Norman.—*Design of Acid Resisting Iron Apparatus.* [These are made of iron-silicon alloys in varying proportions. To make them resistive to acids the toughness of the metal must at present be sacrificed].—Met. & Chem. Engg. Dec. 1 1916; p 647; pp 2½*; 35c.

Swindin, N.—*The Design of Acid Resisting Iron Apparatus.* [Tells considerable about the making of castings and treatment of the iron to be used in the same].—Chem. Tr. Jnl. No. 59 1916; p 323; pp 2.

Thompson, M. De Kay; Thompson, N. J.—*The Electrolytic Oxidation of Sulphurous Acid.* [Speaks of this phenomena with respect to the electrolytic recovery of copper direct from its ores].—Met. & Chem. Engg. Dec. 15 1916; p 677; pp 2*; 35c.

Turner, W. A.—*The Separation of Vanadium from Phosphoric and Arsenic Acid and from Uranium.* [A description of a chemical method].—American Jnl. of Sci. Aug. 1916; p 109; pp 2; 60c.

——— *Sulphur, Pyrites and Sulphuric Acid.* [A review of production and conditions for the world].—Mg. Jnl. Nov. 4 1916; p 730; pp 1¼; 35c.

ARSENIC

Browning, P. E.; Simpson, G. S.; Porter, L. E.—*On the Qualitative Separation and Detection of Tellurium and Arsenic, Iron and Thallium, and Zinconium and Titanium.* [Details of procedure for this chemical method are given].—American Jul. of Sci. Aug. 1916; p 106; pp 3; 60c.

Ichikawa, Shimmatsu.—*Some Notes on Japanese Minerals.* [Treats on the peculiar nature of some mineral crystals found in Japan].—American Jnl. of Sci. Aug. 1916; p 111; pp 9*; 60c.

Reid, J. H.—*The Comet Mine, Sundown, Ballandean, Queensland, Australia.* [A geological description of the ore deposits and ore].—Queen. Govt. Mg. Jnl. June 15 1916; p 258; pp 2*; 35c.

Turner, W. A.—*The Separation of Vanadium from Phosphoric and Arsenic Acid and from Uranium.* [A description

of a chemical method].—American Jnl. of Sci. Aug. 1916; p 109; pp 2; 60c.

ASBESTOS

Bancroft, J. Austen.—*Mining Operations in Quebec During* 1915. [A separate report on the geology of the zinc-lead deposits in Portneuf county is included].—Quebec Dept. of Mines; Report; pp 146*.

Dunstan, B.—*Queensland Mineral Deposits, Australia.* [A detailed description of nature of occurrence, production, prospects and methods of concentration of asbestos ores].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 372; pp 3½*; 35c.

Frood, G. E. B.—*The Cape Asbestos Industry, South Africa.* [From the annual report of the Government Mining Engineer. The deposits and working of the same in Cape province are described in detail].—S. Afr. Mg. Jnl. Sept. 30 1916; p 94; pp 1½; Oct. 7; p 127; pp 1½; 70c.

McLaughlin, R. P.; Bradley, Walter C.; Brown, G. Chester; Lowell, F. L.—*Mines and Mineral Resources of Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin and Stanislaus Counties, California.* [Operations are included in separately describing mines, plants and unworked deposits].—Calif. Mg. Bur.; pp 220*.

Taber, Stephen.—*The Genesis of Asbestos and Asbestiform Minerals.* [Includes an account of asbestos and minerals related to it].—Bull. A. I. M. E. Nov. 1916; p 1973; pp 26*; 35c.

Tucker, W. B.—*Mines and Mineral Resources of Amador, Calaveras, Tuolumne.* [Economic mineral products are reviewed by separate descriptions of deposits and mines, with some information on the condition of the country].—Calif. Mg. Bur.; pp 180*.

——— *Canada, the Manufacture of Asbestos in.*—Canadian Mg. Inst. Bull. Aug. 1916; p 671; pp 3; 35c.

——— *Canadian Metal Trades and Preparedness.* [A study of production, imports and exports].—Canadian Mg. Inst. Bull. Aug. 1916; p 675; pp 16½; 35c.

——— *Quebec Mining Industry—A Review for the First Half of* 1916. [Brief accounts of operations at various properties].—Canadian Mg. Inst. Bull. Sept. 1916; p 796; pp 4; 50c.

——— *Rhodesia Chamber of Mines Report of the Executive Committee.* [Tables of details of the production of gold and asbestos properties in the district are given].—Rhodesia Chamber of Mines Report Aug. 1916; pp 6.

FELDSPAR

Katz, F. J.—*Feldspar in* 1915. [Reviews the occurrence and nature of the mineral with methods of mining and refining and statistics on its production].—Min. Res. of U. S. II:7; pp 11.

Neumann, B.; Draisbach, F.—*Decomposition of Feldspar for the Production of Potassium Salts.*—Zts. Angew. Chem. Vol. 29, 1916; pp 13; $1.

Watts, A. S.—*The Feldspars of New England and North Appalacian States.* [Goes into the lithology of feldspar rocks in general and gives nature of deposits by states. Methods of testing for quality and concentration of rocks are given].—U. S. Bur. of Mines Bull. 92; pp 181*; 35c.

FERTILIZERS

de Schmid, Hugh S.—*Investigation of a Reported Discovery of Phosphate in Alber*ta. [The Commission of Conservation, Canada, found phosphate rock near Banff, Alberta. The nature and geology of the deposits are here described in detail].—Canada Mines Branch; pp 50*.

Harris, H. W.—*Commercial Fertilizers in Germany.* [Considers the subject from a production and consumption view up to 1914].—American Fertilizer Sept. 2 1916; p 32; pp 2; 25c.

Lodge, F. S.—*The Sampling of Fertilizers.* [Details of different methods in common use].—Amer. Fertilizer Oct. 14 1916; p 26; pp 3*; 25c.

Mansfield, G. R.—*A Reconnaissance for Phosphate in the Salt River Range, Wyoming.*—U. S. G. S. Bull. 620-O; pp 19*.

Phalen, W. C.—*The Conservation of Phosphate Rock in the United States.* [Published by permission of the U. S. G. S. A detailed description of the deposits and methods of operation in U. S.]—Bull. A. I. M. E. Nov. 1916; p 1901; pp 34*; 35c.

Phalen, W. C.—*The Conservation of Phosphate Rock in Tennessee.* [On the geology, nature and genesis of the deposits and methods of stripping and mining the deposits, with notes on production].—Res. of Tenn. Oct. 1916; p 193; pp 24*.

Phalen, W. C.; Hicks, W. B.—*Phosphate Rock in* 1915. [On the market, production, methods of making soluble phosphates and chemical tests for the minerals].—Min. Res. of U. S. II:18; pp 18.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Filey & Son; book; pp 856*; $4.

Sellards, E. H.—*Origin of Hard Rock Phosphates of Florida..* [The rock is found as large boulders in a formation of the Pliocene age].—Florida Geol. Surv. Fifth Annual Report; p 23; pp 58*.

——— *Basic Phosphate Fertilizer as a By-Product in Iron Smelting.* [A method used in connection with open-hearth smelting].—Chem. Eng. & Mfg. Aug. 1916; p 68; pp 1*; 30c.

——— *British Fertilizer Notes.*—American Fertilizer Aug. 5 1916; p 36; pp 3; 25c.

——— *Fertilizer Industry Report.* [A report by the Federal Trade Commission].—Report; pp 269*; 60c.

——— *Official Agriculture Chemists' Society.* [Gives the papers read and proceedings of the annual meeting of 1916, held at Washington, D. C.].—Amer. Fertilizer Dec. 9 1916; p 21; pp 18¼; 25c.

——— *The International Movement of Fertilizers and Chemical Products Useful to Agriculture.* [A review by tables and discussion of the production, imports and exports of fertilizing materials of all the countries of the world].—International Inst. of Agriculture, Rome; pp 76.

FLUORSPAR

——— *Great Britain, Special Reports on the Mineral Resources of.*—Geol. Surv. of England. Vols. III, IV, V; $1.

GEMS

Gottschalk, A. L. M.—*The Discovery of Kimberlite in Brazil.* [This is an eruptive rock which forms the matrix of a diamond bearing formation].—Mg. World Dec. 16 1916; p 1031; pp 1; 10c.

Mellor, E. T.—*The East Rand, South Africa.* [A description of the formation of the country].—S. Afr. Engg. June 1916; p 102; pp 2⅛*; 35c.

Purington, C. W.—*Precious Stones in the Urals, Russia.* [A description of the deposits and their location].—Mg. Mag. July 1916; p 24; pp 2*; 50c.

Schaller, Waldemar T.—*Gems and Precious Stones in* 1915. [Briefs on the production and activities of each state are given].—Min. Res. of U. S. II:29; pp 16.

Wagner, P. A.—*Economic Geology and Mineral Industry of Southwest Africa.*—S. Afr. Mg. Jnl. July 1 1916; p 311; pp 1; 35c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *Transvaal Chamber of Mines Report for* 1915. [A general account of the mineral industry in the state].—Transvaal Chamber of Mines Report.

GRAPHITE

Bastin, E. S.—*Graphite in* 1915. [The market conditions and U. S. in general are first reviewed and followed by separate reviews of the industry in each state].—Min. Res. of U. S. II:11; pp 13.

Jones, Robert W.—*Graphite Industry in New York.* [Notes on the equipment, plants, mines and mineral found in the state].—E. & M. J. Oct. 28 1916; p 773; pp 2½*; 25c.

——— *Canadian Metal Trades and Preparedness.* [A study of production, imports and exports].—Canadian Mg. Inst. Bull. Aug. 1916; p 675; pp 16½; 35c.

——— *Graphite.* [Its production and conditions in the principal markets of the world].—Mg. Jnl. Dec. 2 1916; p 793; pp 1½; 35c.

——— *Great Britain, Special Reports on the Mineral Resources of.*—Geol. Surv. of England. Vols. III, IV, V; $1.

GYPSUM

Freeman, O. W.—*Gypsum and Lime Industry in Central Montana.* [A general description of the geology, nature and operation of the deposits, with some information on the operating properties].—Mg. World Oct. 14 1916; p 663; pp 2*; 10c.

Lupton, Charles T.; Condit, D. Dale.—*Gypsum in the Southern Part of the Bighorn Mountains of Wyoming.* [Separate brief descriptions of each deposit are given and a general description of the nature of the country and its geology].—U. S. G. S. Bull. 640-H; pp 19*.

Stone, Ralph W.—*Gypsum in* 1915. [Reviews the uses, methods of refining and production].—Min. Res. of U. S. II:14; pp 9.

——— *Great Britain, Special Reports on the Mineral Resources of.*—Geol. Surv. of England. Vols. III, IV, V; $1.

MAGNESITE

Dolbear, Samuel H.—*Magnesite Production and Markets.*—M. & S. P. Aug. 12 1916; p 234; pp 2*; 20c.

Dunstan, B.—*Queensland Mineral Deposits.* [Deals with the geology, chemistry and metallurgy of magnesite, dolomite and magnesium salts].—Queen. Govt. Mg. Jnl. Nov. 15 1916; p 529; pp 4½; 35c.

Eddy, L. H.—*Sonoma Magnesite Mines, California.* [Describes the development, transportation and calcining of the ores for shipment].—E. & M. J. July 29 1916; p 225; pp 2*; 25c.

Mudd, S. W.—*Mining and Metallurgical Progress in the Southwest.* [Address delivered before the Chamber of Mines and Oil, Los Angeles, being on the production of ores and metals].—Mg. World July 1 1916; p 11; pp 2; 10c.

Palmer, Leroy A. — *A Sedimentary Magnesite Deposit.* [The deposit is operated by the Rex Plaster Co., Bissell, Cal. About 45 tons are produced per day and shipped to Los Angeles. Method of mining is briefly described].—E. & M. J. Dec. 2 1916; p 965; pp 2¼*; 25c.

Richards, J. W.—*The Metallurgy of the Rarer Metals.* [Abst. from a paper read before the American Inst. of Chem. Eng. Discussing the importance of the future of magnesium, chromium and other metals].—Mg. World July 15 1916; p 93; pp 1¼; 10c.

——— *California Mineral Production.* —E. & M. J. Dec. 2 1916; p 971; pp 1½; 25c.

MICA

Dunstan, B.—*Queensland Mineral Deposits.* [A review of occurrences, production, values and prospects of mica in Queensland, Australia].—Queen. Govt. Mg. Jnl. June 15 1916; p 263; pp 2; 35c.

Ichikawa, Shimmatsu.—*Some Notes on Japanese Minerals.* [Treats on the peculiar nature of some mineral crystals found in Japan].—American Jnl. of Sci. Aug. 1916; p 111; pp 9*; 60c.

Schaller, Waldemar T.—*Mica in* 1915. [Gives prices, imports, exports, uses, production, nature and place of occurrence, foreign markets and general conditions of the industry in U. S.].—Min. Res. U. S. II:21; pp 14.

NITRATES

Miller, Benjamin L.; Singewald, J. T., Jr.—*Exploitation of Chilean Mines.* [Treats on the industries from an economic and industrial standpoint].—E. & M. J. Aug. 12 1916; p 289; pp 4¼*; 25c.

Strong, William. — *Electro-Metallurgical Uses of Surplus Power.* [On the possible uses to which the excess hydro-electric power of our western states might be put].—Jnl. Elect. Power & Gas July 15 1916; p 43; pp 3*; 35c.

——— *Formation of Nitrate Deposits, Chile.*—M. & S. P. Aug. 26 1916; p 314; pp 1*; 20c.

POTASH

Burchard, Ernest F.—*Potash as a By-Product in the Cement and Iron Industries.* [Abst. from the Manufacturer's Record. Consists of some details in a general discussion and review of the subject].—Chem. Eng. & Mfg. Sept. 1916; p 104; pp 4; 30c.

de Beers, F. M.—*Development of Our Potash Industry.* [A paper read before the American Meat Packers' Assn. Deals with the several sources from which potash might be obtainable].—Chem. Eng. & Mfg. Nov. 1916; p 196; pp 2¾; 30c.

Grasty, John S.—*Southern Iron Ores As a Source of Potash.* [Reprinted from the Manufacturers' Record].—Chem. Eng. & Mfg. Oct. 1916; p 184; pp 2¼; 30c.

Hicks, W. B.—*Simple Tests for Potash.* —M. & S. P. Aug. 5 1916; p 207; pp 1½; 20c.

Hicks, W. B.—*Simple Tests for Potash.* [In general the test consists of flame coloration peculiarities].—American Fertilizer Sept. 16 1916; p 30; pp 1¾; 25c.

Koepping, Emil D.—*Can an American Potash Industry Be Established.* [A general review of the possibilities for the same].—Met. & Chem. Engg. Oct. 1 1916; p 385; pp 2¾; 35c.

Phalen, W. C.; Hicks, W. B.—*Potash Salts in* 1915. [Chemical qualitative tests and methods of analysis are also given. The economic geology and occurrence of this mineral are reviewed, with an account of the progress made in developing the resource in this country].—Min. Res. of U. S. II:12; pp 39.

Wells, Roger C.—*Experiments on the Extraction of Potash from Wyomingite.* [The mineral contains principally potash and alumina as a silicate].—U. S. G. S. Prof. Paper 98-D; pp 4.

Wright, Allen H.—*Kelp Industry of the Pacific Coast.* [A review of the scope of the industry and operations of some companies operating plants].—American

Fertilizer Nov. 25 1916; p 31; pp 2¼; 25c.

——— *Birth of the Potash Industry in the United States.* [Speaks of some of the plants which were among the first to produce potash in this country].—Mg. & Oil Bull. Dec. 1916; p 297; pp 2¼*; 25c.

PYRITES

Drakeley, T. J.—*Iron Pyrites and the Oxidation of Coal.* [From the Jnl. of the Chem. Soc.].—Coll'y. Guard. Oct. 20 1916; p. 762; pp 1⅓*; 35c.

Hopkins, P. E.—*Iron Pyrite Deposits in Southeastern Ontario, Canada.* [An economic geological treatise on the subject].—Bull. A. I. M. E. Aug. 1916; p 1361; pp 9*; 35c.

Phalen, W. C.—*Sulphur, Pyrite, and Sulphuric Acid in* 1915. [A review of production and conditions, including some foreign countries].—Min. Res. U. S. II: 22; pp 16.

Smith, C. H., Jr.—*Genesis of Pyrite Ores of St. Lawrence County, New York.* [The bodies here are widely disseminated, but occur only with rusty gneisses].—New York State Museum Bull. No. 158; pp 40*.

——— *Sulphur, Pyrites and Sulphuric Acid.* [A review of production and conditions for the world].—Mg. Jnl. Nov. 4 1916; p 730; pp 1¼; 35c.

QUARTZ

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [The effects of several different elements on iron are treated separately].—Met. & Chem. Engg. Nov. 15 1916; p 588; pp 8*; 35c.

Katz, Frank J.—*Silica in* 1915. [Takes up the uses of silica, its production in general and by states, with briefs on other important siliceous materials].—Min. Res. of U. S. II:8; pp 6.

McDowell, J. Spotts.—*A Study of the Silica Refractories.* [Published by permission of the Massachusetts Inst. of Tech.].—Bull. A. I. M. E. Nov. 1916; p 1999; pp 57*; 35c.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* [Gives the results of tests made on steels containing small amounts of other metals, as copper, tin, silicon, phosphorous, sulphur, etc.].—Iron & Steel Inst. Adv. Copy; pp 91*; 50c. I. & C. Tr. Rev. Sept. 22 1916; p 350; pp 2⅓*; 35c.

SALINES

Merrill, Frederick J. H.—*Geology and Mineral Resources of San Diego and Imperial Counties.* [Though gold is the principal metal mined, considerable is done in the non-metallic industry].—Calif. Mg. Bur.; pp 113*.

Mixter, W. G.—*The Thermochemistry of Silicion and Heat of Combination of Silica with Water.* [Experiments of the author and comparison of them with others' results].—American Jnl. of Sci. Aug. 1916; p 125; pp 7½*; 60c.

Phalen, W. C.—*Salt, Bromine and Calcium Chloride in* 1915. [Deals with production only].—Min. Res. U. S. II:20; pp 12.

Ries, Heinrich. — *Economic Geology.* [A brief review is made regarding the industry and occurrence of each mineral, including metals and non-metals].—John Wiley & Son; book; pp 856*; $4.

Way, Herbert, W. L.—*The Minerals of Sze-Chuan, China.* [Brief descriptions of the deposits, their possibilities and operation. Salts have been mined, petroleum is plentiful and gold, silver and copper give promise].—Mg. Mag. July 1916; p 20; pp 4*; 50c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv..—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

SULPHUR

Darton, *N. H.—Geology and Underground Water of Luna County, New Mexico.* [A very complete description of the geologic formation].—U. S. G. S. Bull. 618; pp 188*.

Drakeley, T. J.—*The Examination of Coal and Coke.* [Deals with methods for determining the sulphur in coal].—Sci. & Art. of Mg. Nov. 4 1916; p 148; pp 2; 35c.

Drushel, W. A.; Elston, C. M.—*On the Quantitative Estimation of Small Quantities of Sulphide Sulphur.* [The work is done with the inner tube of a Liebig condenser].—American Jnl. of Sci. Aug. 1916; p 155; pp 4; 60c.

Hayward, Carle R.—*The Effect of Sulphur on Low-Carbon Steel.* [A review of metallographic tests, giving both the structure and change in physical properties due to the presence of sulphur].—Bull. A. I. M. E. Oct. 1916; p 1841; pp 10*; 35c.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [The effects of several different elements

on iron are treated separately].—Met. & Chem. Engg. Nov. 15 1916; p 588; pp 8*; 35c.

Miller, Benjamin L.; Singewald, J. T., Jr.—*Exploitation of Chilean Mines.* [Treats on the industries from an economic and industrial standpoint].—E. & M. J. Aug. 12 1916; p 289; pp 4¼*; 25c.

Oinouye, Y.—*A Peculiar Process of Sulphur Deposition, Japan.* [Describes sublimation, impregnation and flow deposits and deposition in lakes].—Jnl. of Geol. Dec. 1916; p 806; pp 3*; 75c.

Osann, B.—*Behavior of Sulphur in the Blast Furnace.* [The reduction is regarded as taking place in the semi-solid magma].—Stahl & Eisen 1916 No. 36; p 210; pp 5; 35c.

Phalen, W. C.—*Sulphur, Pyrite, and Sulphuric Acid in* 1915. [A review of production and conditions, including some foreign countries].—Min. Res. U. S. II: 22; pp 16.

Pulsifer, H. B.—*The Determination of Sulphur in Iron and Steel.* [The many methods used in the past and today are briefly described and discussed and a bibliography of 285 articles on the subject is given].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1115; pp 8½*; 60c.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* [Gives the results of tests made on steels containing small amounts of other metals, as copper, tin, silicon, phosphorous, sulphur, etc.].—Iron & Steel Inst. Adv. Copy; pp 91*; 50c. I. & C. Tr. Rev. Sept. 22 1916; p 350; pp 2⅓*; 35c.

Toso, Pietro.—*Sul Modo di Formazione dei Giacimenti Petroliferi e Solfiferi.* [On the method of formation of petroliferous and sulphurous materials]. Ind. Chim. Min. & Met. June 10 1916; p 177; pp 5; June 25; pp 193; pp 3¾*; 70c.

——— *Operations of Midwest Sulphur Co., Cody, Wyoming.*—S. L. Mg. Rev. July 30 1916; p 15; pp 2*; 25c.

——— *Quebec Mining Industry—A Review for the First Half of* 1916. [Brief accounts of operations at various properties].—Canadian Mg. Inst. Bull. Sept. 1916; p 796; pp 4; 50c.

——— *Sulphur, Pyrites and Sulphuric Acid.* [A review of production and conditions for the world].—Mg. Jnl. Nov. 4 1916; p 730; pp 1¼; 35c.

——— *Texas Sulphur Deposits Are Being Actively Developed.*—Mg. World Nov. 18 1916; p 875; pp ½; 10c.

TALC AND SOAPSTONE

Diller, J. S.—*Talc and Soapstone in* 1915. [Each is taken separately in general for U. S. Both prices and production are given].—Min. Res. of U. S. II:9; pp 4.

Hewitt, F. R.—*Method of Mining Talc.*—Mg. World Sept. 9 1916; p 454; pp ¾; 10c.

MISCELLANEOUS NON-METALS (Unclassified)

Dunstan, B.—*Queensland Mineral Deposits.* [Deals with the geology, chemistry and metallurgy of magnesite, dolomite and magnesium salts].—Queen. Govt. Mg. Jnl. Nov. 15 1916; p 529; pp 4½; 35c.

Higgins, Will C.—*The Ozokerite Deposits of Soldier Summit, Utah.* [A general description of the deposits, operating companies, etc.].—S. L. Mg. Rev. Sept. 30 1916; p 15; pp 3½*; 25c.

Jimenez, Carlos P.—*Estadistica Minera en* 1914 *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150.

Phalen, W. C.—*Salt, Bromine and Calcium Chloride in* 1915. [Deals with production only].—Min. Res. U. S. II:20; pp 12.

Robinson, Heath M.—*Ozokerite in Central Utah.* [Treats on the geology, genesis and tests for determining the mineral with descriptions of properties and methods used].—U. S. G. S. Bull. 641-A; pp 16*. Mg. World Sept. 16 1916; p 497; pp 1¾*; 10c.

Vivian, Arthur C.—*Barytes Mining in Georgia.* [Describes the geology of the deposits, methods of prospecting, washing and concentration and the leaching method of refining].—E. & M. J. Dec. 23 1916; p 1083; pp 2¼*; 25c.

Yale, Charles G.—*Borax in* 1915. [Most of this product comes from southern California].—Min. Res. U. S. II:32; pp 2*.

——— *Great Britain, Special Reports on the Mineral Resources of.*—Geol. Surv. of England. Vols. III, IV, V; $1.

PART III.

TECHNOLOGY.

MINES AND MINING (a*).

CHAPTER XIII.

PROSPECTING

Alderson, Matt W.—*Mining Possibilities in Colombia, S. A.* [The author tells of his experience in drilling placer ground in Colombia].—Mg. World Aug. 12 1916; p 281; pp 2¼*; 10c.

Ball, Sydney H.; Thompson, L. S.—*Spring-Steel Prospecting Bit.*—E. & M. J. Dec. 16 1916; p 1058; pp ¾*; 25c.

Bowles, Oliver.—*The Technology of Marble Quarrying.* [Takes up methods of operation and accounting with a study of the mineralogical constituents of the rock which tend to vary its properties and grade].—U. S. Bur. of Mines Bull. 106; pp 174*; 40c.

Brothers, Charles S.—*Mining and Prospecting in National Forests.* [Reviews the laws and rights of the miner and prospector in the National Forest reserves].—Mg. & Oil Bull. July 1916; p 185; pp 3*; 25c.

Brothers, Charles S.—*Mining and Prospecting in National Forests.* [Discusses the law affecting prospecting in national forests].—Mg. World Sept. 16 1916; p 493; pp 1¾; 10c.

De Kalb, Courtenay.—*Surficial Indications of Copper.* [Discussion on a paper of the same title by Frank H. Probert].—M. & S. P. July 22 1916; p 115; pp 1¼; 20c.

Dunstan, B.—*Queensland Mineral Deposits.* [A review of occurrence, production, values and prospects of mica in Queensland, Australia].—Queen. Govt. Mg. Jnl. June 15 1916; p 263; pp 2; 35c.

Dunstan, B.—*Queensland Mineral Deposits, Australia.* [A detailed description of nature of occurrence, production, prospects and methods of concentration of asbestos ores].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 372; pp 3½*; 35c.

French, Harold.—*Prospecting: A Suggestion.* [Describes a theoretical method of systematic prospecting for a syndicate].—M. & S. P. July 22 1916; p 117; pp 1½; 20c.

Frood, G. E. B.—*The Cape Asbestos Industry, South Africa.* [From the annual report of the Government Mining Engineer. The deposits and working of the same in Cape province are described in detail].—S. Afr. Mg. Jnl. Sept. 30 1916; p 94; pp 1½; Oct. 7; p 127; pp 1½; 70c.

Herr, Irving.—*Sampling Placer-Gravel Deposits.* [Describes the system by which the holes were placed and method of plotting the same].—E. & M. J. Aug. 5 1916; p 261; pp ¾*; 25c.

Johnson, R. H.; Huntley, L. G.—*Principles of Oil and Gas Production.* [Treats on the nature and genesis of the deposits, methods of drilling and prospecting, methods of operating and last an economic geological review of oil and gas].—Wiley & Sons; book; pp 371*; $3.75.

Lang, Herbert.—*The Prospectors' Field-Work.* [A general talk].—M. & S. P. Nov. 11 1916; p 705; pp 1½; 20c.

Platts, John B.—*Pocket-Hunting Applied to Prospecting.* [Refers to the locating of rich gold pockets].—M. & S. P. Aug. 26 1916; p 306; pp 1; 20c.

Probert, Frank H.—*Surficial Indications of Copper.* [On the geological and mineralogical peculiarities of ore outcrops].—M. & S. P. Aug. 19 1916; p 267; pp 9*; 20c.

Probert, Frank H.—*Surficial Indications of Copper.* [Information on the physical and chemical properties of outcrops indicating copper deposits].—M. & S. P. July 15 1916; p 81; pp 7*; 20c.

*(a) Includes Prospects and Prospecting, Surveying and Drafting, Drilling and Boring, Sampling, Explosives and Blasting, Shafts and Shaft Sinking, Lighting and Signalling, Pumps and Pumping, Tunnels and Tunneling, Mine Gas, Mine Water, Mine Temperature, Ventilation, Supports, Hoists and Hoisting, Dredging, Power Shovels and Excavators, Hydraulic Mining, Mining Costs and Miscellaneous.

Shaw, Eugene W.; Matson, George C.; Wegemann, Carrol H.—*Natural Gas Resources of Parts of North Texas.* [Describes the geology and the various operating fields, with some of the various methods they employ].—U. S. G. S. Bull. 629; pp 129*.

Staley, Homer F.; Beecher, Milton F.—*Practical Handling of Iowa Clays with Application of Ceramic Principles.* [Methods of prospecting and testing the clay bodies are given, as well as descriptions of methods of manufacturing and properties of the burned product].—Iowa State College Bull. 43; pp 48*.

Storms, William H.—*Outcrops and the Prospector.* [Tells of the geologic nature and appearance of an outcrop and what the same would signify. In most instances particular cases are cited].—M. & S. P. July 22 1916; p 129; pp 4*; 20c.

Varadaiya, M.—*A Synopsis of the Rules and Orders Relating to the Exploitation of Minerals in Mysore, India.* [Nearly all mining lands are owned by the government and can only be leased. The appendices contain forms of application for the same].—Mysore Dept. of Mines & Geol. Bull. 8; pp 76; 65c.

Vivian, Arthur C.—*Barytes Mining in Georgia.* [Describes the geology of the deposits, methods of prospecting, washing and concentration and the leaching method of refining].—E. & M. J. Dec. 23 1916; p 1083; pp 2¼*; 25c.

Watts, A. S.—*The Feldspars of New England and North Appalachian States.* [Goes into the lithology of feldspar rocks in general and gives nature of deposits by states. Methods of testing for quality and concentration of rocks are given].—U. S. Bur. of Mines Bull. 92; pp 181*; 35c.

Young, George J.—*Elements of Mining.* [Each of the departments of mine operations, as drilling, ventilation, etc., is considered briefly and separately, giving some details regarding the same].—McGraw-Hill; book; pp 628*; $5.

——— *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables].—McGraw-Hill Co.; book; pp 1172*; $4.

SURVEYING AND DRAFTING

Boericke, W. F.—*Some Practical Notes on Mine Surveying.* [An alternative for shaft plumbing is given].—E. & M. J. Aug. 19 1916; p 333; pp 2½*; 25c.

Bryson, Thomas; Chambers, George M.—*An Introduction to Mine Surveying.* [A text for the student and young surveyor in the field].—Longmans, Green & Co., N. Y.; pp 288*; $1.40.

Burton, George E.—*Dip and Strike Calculations from Drill-Hole Data.* [Formulas and graphic illustrations of the same are derived and described].—E. & M. J. July 15 1916; p 136; pp 1½*; 25c.

Eliot, M. E. Yorke.—*Tacheometer Surveying.* [An account of stadia surveying methods as practiced with the transit in England].—Spon & Chamberlain; book; pp 145*; $2.

Gannett, Samuel S.—*Geographic Tables and Formulas.* [A number of tables for geodetic plane surveying; logarithms reduction tables, data on various celestial bodies].—U. S. G. S. Bull. 650; pp 388; 35c.

Hammond, L. M. — *Tunnel Survey Methods Used in Driving Strawberry Tunnel, Utah.* [Taken from Engg. News. Details of methods and peculiarities followed in the surveying work are given].—E. & M. J. Dec. 16 1916; p 1050; pp 2*; 25c.

Jackson, A. M.—*Azimuth.* [A paper read before the Assn. of Ontario Land Surveyors].—Canadian Eng. Aug. 24 1916; p 145; pp 2; 35c.

Jakins, G. F.; Coulter, L. J.—*Stope Surveying at Mount Lyell, Australia.* [A paper read before the Australian Inst. of Mg. Eng.].—E. & M. J. July 15 1916; p 129; pp 4¾*; 25c.

Marshall, R. B.—*Spirit Leveling in West Virginia.* [Specific data on level lines run datuum plains, and bench marks in the state].—U. S. G. S. Bull. 632; pp 168; 20c.

Marshall, R. B.—*Spirit Leveling in Arkansas, 1896 to 1915.* [Data and a description of the location of bench marks in the state].—U. S. G. S. Bull. 636; pp 56*; 15c.

Marshall, R. B.—*Spirit Leveling in Georgia 1896 to 1914, inclusive.* [Gives the elevation and location of all U. S. G. S. bench marks].—U. S. G. S. Bull. 635; pp 60.

Marshall, R. B.—*Spirit Leveling in Maine, 1899 to 1915.* [Data and descriptions of the location of all U. S. G. S. bench marks in the state are given].—U. S. G. S. Bull. 633; pp 64*; 15c.

Marshall, R. B.—*Spirit Leveling in West Virginia.* [Locates and gives elevation of U. S. G. S. bench marks established from 1896 to 1915].—U. S. G. S. Bull. 632; pp 168; 20c.

Marshall, R. B.—*Primary Traverse in Illinois, Wisconsin, Minnesota, North Dakota and South Dakota.* [Survey data on

survey stations established].—U. S. G. S. Bull. 644-E; pp 72.

Marshall, R. B.—*Primary Traverse in Indiana and Michigan.* [Data on triangulation stations established in 1913 to 1915].—U. S. G. S. Bull. 644-F; pp 49.

Marshall, R. B.—*Primary Traverse in Iowa and Missouri.* [Gives location and survey data for triangulation stations established from 1913 to 1915].—U. S. G. S. Bull. 644-G; pp 44.

Marshall, R. B.—*Primary Traverse in Nebraska, Kansas and Oklahoma.* [The location and survey data on stations established from 1913 to 1915].—U. S. G. S. Bull. 644-L; pp 16.

Marshall, R. B.—*Spirit Leveling in New Mexico* 1902 *to* 1915, *inclusive.* [Gives location and elevation of bench marks established].—U. S. G. S. Bull. 638; pp 112.

Marshall, R. B.—*Spirit Leveling in South Dakota* 1896 *to* 1915, *Inclusive.* [Location and survey data on bench marks established].—U. S. G. S. Bull. 643; pp 100.

Marshall, R. B.—*Triangulation in Arizona and New Mexico.* [Gives specific data for the location and survey computations from stations established by the U. S. G. S.].—U. S. G. S. Bulletin 644-B; pp 12*.

Marshall, R. B.—*Triangulation and Primary Traverse in Texas.* [Triangulation stations of the state, with location and survey data of each].—U. S. G. S. Bull. 644-P; pp 76.

Marshall, R. B.—*Triangulation in Nevada* 1913 *to* 1915. [A list of the triangulation stations].—U. S. G. S. Bull. 644-M; pp 26.

Marshall, R. B.—*Triangulation and Primary Traverse in Kentucky, Tennessee and Arkansas..* [Triangulation stations established from 1913 to 1915].—U. S. G. S. Bull. 644-H; pp 14.

Marshall, R. B.—*Triangulation in Colorado, Utah, Idaho, Montana and Wyoming.* [Location and survey data on the triangulation stations of these states].—U. S. G. S. Bull. 644-D; pp 129.

Marshall, R. B.—*Triangulation and Primary Traverse in Oregon.* [Survey data of triangulation stations established from 1913 to 1915].—U. S. G. S. Bull. 644-O; pp 24.

Marshall, R. B.—*Triangulation and Primary Traverse in Washington.* [Gives location and survey data on stations established during 1913 to 1915].—U. S. G. S. Bull. 644-Q; pp 10.

Marshall, R. B.—*Triangulation in California,* 1913-1915. [Gives the location and data on triangulation stations established].—U. S. G. S. Bull. 644-C; pp 60*.

McCullough, Ernest.—*Practical Surveying for Surveyors' Assistants, Vocational and High Schools.* [In a practical way what a surveyor is supposed to do, methods and surveying laws are explained.]—Van Nostrand Co.; book; pp 400*; $2.

Molesworth, Guilford L.—*Pocket Book of Engineering Formulae.* [Information on civil, mechanical and electrical engineering work].—Spon & Chemberlain, N. Y.; book; pp 936*; $1.50.

Ower, Leslie H.—*Cyclometer Surveys.* [On the use of this instrument in making topographic surveys of large areas].—Proc. Aust. I. M. E. Sept. 1916; p 103; pp 11*; 50c.

Parsons, J. L.—*An Office Record System for Civil Engineers.* [Details of methods for filing surveys, literature, etc.].—Engg. & Cont. Nov. 29 1916; p 466; pp 4*; 20c.

Reeves, Edward A.—*Surveying, Past and Present.* [A review of surveying instruments from ancient to present times].—Jnl. of Royal Soc. of Arts. Sept. 15 22 1916; p 747; pp 17*; Sept. 29; p 765; pp 14*; 70c. 1916; p 733; pp 13*; 35c.

Sanner, F. C.—*Set-Over Tables for the Mine Transitman.*—Coal Age Aug. 26 1916; p 335; pp 1*; 20c.

Simmons, Theodore; Hanst, J. F.—*Dip and Strike Calculations.* [Graphical methods for determining].—E. & M. J. Aug. 5 1916; p 270; pp 1*; 25c.

Staley, Homer F.; Beecher, Milton F.—*Practical Handling of Iowa Clays with Application of Ceramic Principles.* [Methods of prospecting and testing the clay bodies are given, as well as descriptions of methods of manufacturing and properties of the burned product].—Iowa State College Bull. 43; pp 48*.

Weeks, Walter Scott.—*A Graphic Method for Correcting Steel Tapes.* [This article also appears in the Univ. of California publication. Curves, data and formulas are given].—M. & S. P. Oct. 28 1916; p 625; pp 3*; 20c.

Wuensch, C. Erb.—*The Scientific Numbering of Mine Workings.* [A systematic method of numbering mine stopes, drifts, crosscuts and other workings].—E. & M. J. Dec. 2 1916; p 977; pp 1¼*; 25c.

Yaste, G. L.—*Care of Mine Maps.* [Notes the misuse of originals and states that it be eliminated by keeping tracings of them up to date].—Coal Age Aug. 5 1916; p 223; pp 1; 20c.

——— *Coal Miners' Pocketbook.*

[Gives rules, principles, formulas and tables].—McGraw-Hill Co.; book; pp 1172*; $4.

——— *Cost Records of Drafting and Engineering.* [Forms and descriptions of the same for the distributing and keeping of costs on different jobs].—Engg. & Cont. Nov. 29 1916; p 472; pp 2*; 20c.

——— *Ingenious Special Devices for Tunnel Surveys.* [Abst. from Eng. News. Instruments and devices for marking are described].—E. & M. J. July 22 1916; p 180; pp 1¾*; 25c.

ORE RESERVES

Ball, Sydney H.; Thompson, L. S.—*The Southwest Virginia Lead-Zinc Deposits.* [The authors argue that the deposits were made by waters of magmatic origin].—E. & M. J. Oct. 21 1916; p 735; pp 2¾*; 25c.

Boulton, W. S.—*Geology and Petroleum Resources.* [Abst. from the presidential address to the Geological Section of the British Assn.].—Petro. World Oct. 1916; p 489; pp 2¼; 35c.

Brown, J. F. K.—*The Tonnage Available.* [A description of methods of computing the tonnage available in a coal seam and discussion of various factors entering into the figuring of the same].—Coal Age Dec. 9 1916; p 956; pp 3½*; 20c.

Cady, Gilbert H.—*Coal Resources of District VI, Illinois.* [Describes the coals and formation of the district].—Ills. Geol. Surv. Bull. 15; pp 94*.

Campbell, M. R.—*Half Century Life of Coal Supply.* [Abst. from a U. S. G. S. report].—Coal Tr. Bull. Aug. 15 1916; p 40; pp 2½; 25c.

Dominian, Leon. — *Fuel in Turkey.* [Coal and petroleum are reviewed separately by the places in which they occur. The production, location and nature of the deposits are given].—Bull. A. I. M. E. June 1916; p 1011; pp 20*; 35c.

Hinds, Henry.—*The Coal Resources of the Clintwood and Bucu Quadrangles, Virginia.* [A complete description of each bed in the area is given, with a general geologic description of the area as a whole].—Va. Geol. Surv. Bull. XII; pp 206*.

Huels, Frederick William.—*The Peat Resources of Wisconsin.* [Abstract of Bulletin 45 of the Wisconsin Geol. Surv., in which the nature of the beds and properties of the peat found in the several localities is given].—Jnl. Amer. Peat Soc. Oct. 1916; p 237; pp 12; $1.60.

Kay, Fred H.; White, K. D.—*Coal Resources of District VIII, Illinois.* [Detailed description of the deposits and formation surrounding Danville]. — State Geol. Surv. Bull 14; pp 68*.

Key, A. Cooper.—*The Rand's Ore Reserves.* [Description and tabulated information and data are given].—E. & M. J. Sept. 23 1916; p 557; pp 1¼; 25c.

Lupton, Arnold.—*Coal Resources of the United Kingdom.* [A paper read before the South Wales Inst. of Eng.].—I. & C. Tr. Rev. July 28 1916; p 95; pp 2; 35c.

McGrath, J. W.—*Newfoundland Coal Deposits.* [A review of the deposits now being held as reserves and those being operated].—Canadian Mg. Jnl. Sept. 15 1916; p 439; pp 2½; 35c.

Scott, Herbert K.—*Manganese Ores of Russia, India, Brazil and Chile.* [Discussion of a paper by E. C. Harder].—A. I. M. E. Bull. Dec. 1916; p 2222; pp 5½; 35c.

Ting, V. K.—*The Coal Resources of China.* [A general review of the country as regards coal deposits].—Far East Rev. June 1916; p 1; pp 4*; 35c.

Wilson, A. W. G.—*On the Possibility of Producing Refined Copper in Canada.* [Published by permission of the Mines Branch, Ottawa, Ont. The deposits, reserves and refining of copper in Canada are discussed].—Canadian Mg. Jnl. Nov. 15 1916; p 529; pp 6½; 35c.

Yeatman, Pope.—*Mine of Chile Exploration Co., Chuquicamata, Chile.* [A paper read before the Pan-American Sci. Cong. The history, geology, reserves, power plant and testing of hydrometallurgical treatment of the ores are included].—Teniente Topics Aug. 1916; p 1; pp 18*; 35c.

——— *British Association for the Advancement of Science.* [A report of the Fuel Economy Committee, dealing with the use, consumption and conservation of coal in different industries]. — Coll'y Guard. Sept. 15 1916; p 499; pp 4*; I. & C. Tr. Rev. Sept. 15; p 299; pp 5*; 35c.

DRILLING AND BORING

Alderson, Matt W.—*Mining Possibilities in Colombia, S. A.* [The author tells of his experience in drilling placer ground in Colombia].—Mg. World Aug. 12 1916; p 281; pp 2¼*; 10c.

Austin, W. R.—*Boulder Breaking at a Placer Mine, British Columbia.* [Hand feed hammer drills are used for this work].—Mine & Quarry; Oct. 1916; p 922; pp 2*; 20c.

Ayer, Frank.—*Reducing Air-Drill Re-*

pair Costs. [A general talk pointing out various ways by which this cost can be reduced].—E. & M. J. Nov. 11 1916; p 864; pp 2*; 25c.

Bacon, Raymond F.; Hamor, William A.—*The American Petroleum Industry.* [In Vol. I the history and geology, etc., regarding oil wells is taken up, while Vol. II is on refining of oil].—McGraw-Hill Co.; books; Vol. I pp 446*; Vol. II pp 517*; $5 each.

Balcomb, J. C.—*A Remarkable Tunnel Rapidly Driven in Brazil.* [Gives details of operation, with drawings. A bonus system and unusual method of blasting are described].—Comp. Air July 1916; p 8040; pp 5*; 20c.

Ball, Sydney H.; Thompson, L. S.—*Spring-Steel Prospecting Bit.*—E. &. M. J Dec. 16 1916; p 1058; pp ¾*; 25c.

Bowles, Oliver.—*The Technology of Marble Quarrying.* [Takes up methods of operation and accounting, with a study of the mineralogical constituents of the rock which tend to vary its properties and grade].—U. S. Bur. of Mines Bull. 106; pp 174*; 40c.

Collins, V. B.—*Coal-Cutting by Machinery in the Newcastle and Maitland Districts, N. S. W.* [Machines operated by electricity and compressed air are described and discussed].—Northern Engg. Inst. of N. S. W. April Proc.; p 25; pp 30*; 50c.

Dixon, C. Y.—*Plant and Method of Dry Excavation, Livingstone Channel, Detroit River, Michigan.* [From Professional Memoirs. Pumping, drilling, costs, equipment used, etc., are included in this review].—Engg. & Cont. Nov. 15 1916; p 425; pp 2*; 25c.

Gillette, Halbert Powers.—*Handbook of Rock Excavation Methods and Costs.* [Details regarding the different methods used in rock excavation, as drilling, explosives, etc.].—Clark Book Co.; book; pp 835*; $5.

Hicks, H. L.—*Compressed Air at Rockland Lake Quarry, New York.* [Describes drilling and blasting operations, with some information on the general operation of the quarry].—Comp. Air July 1916; p 8035; pp 4*; 20c.

Humphrey, D. E.—*Drilling and Blasting Shale Banks.* [Discusses several methods of drilling and blasting].—B. & C. Rec. Aug. 15 1916; p 319; pp 4½*; 35c.

Jackson, C.—*Rock Excavation in Coal Mines.* [Five types of drills are described, including electric and compressed air drills, the latter getting its air from a portable electrically driven compressor].—Coal Age July 1 1916; p 32; pp 2¼*; 20c.

Johnson, R. H.; Huntley, L. G.—*Principles of Oil and Gas Production.* [Treats on the nature and genesis of the deposits, methods of drilling and prospecting, methods of operating and last an economic geological review of oil and gas].—Wiley & Sons; book; pp 371*; $3.75.

Lewis, James O.; McMurray, W. F.—*The Use of Mud-Laden Fluid in Oil and Gas Wells.* [Describes the system and other methods of details in drilling for the purpose of stopping waste of gas in drilling for oil wells].—U. S. Bur. of Mines Bull. 134; pp 86*; 25c.

Parsons, L. A.—*Diamond Drilling at Sudbury, Ontario.* [Details of operation and costs].—E. & M. J. Aug. 26 1916; p 381; pp 1¾; 25c.

Phelps, Charles C.—*Shanking Drill Steels.* [Explanatory drawings are shown].—E. & M. J. Aug. 26 1916; p 387; pp 3½*; 25c.

Rossback, E. J.—*Tunnel Construction on the Mill Creek Sewer.* [Methods of operating, drilling, compressed air equipment, lining with concrete and brick, etc., are among things described].—Mine & Quarry; Oct. 1916; p 907; pp 11*; 20c.

Sale, A. J.—*Drilling and Analysis of Copper Ores.* [A general discussion of errors made from taking average of churn-drill hole samples. Also speaks of the sulpho-cyanide assay of copper].—E. & M. J. July 8 1916; p 87; pp 3¼; 25c.

Symons, S. W.—*Compressed-Air Coal Cutters in Canadian Mines.* [The drill is somewhat similar to the ordinary post rock drill].—Coal Age July 1 1916; p 28; pp 1¼*; 20c.

Taylor, W. G.—*Oil Well Motor Equipment.* [A paper read before the American Inst. of Elect. Eng. Gives the electrical power and equipment needed in drilling an oil well].—Jnl. of Elect. Power & Gas July 1 1916; p 6; pp 2½*; 35c.

Tillson, B. F.—*Hammer Drill Records at the Franklin Mines, New Jersey.* [Abst. of a paper read before the A. I. M. E. Considers drifting, raising and stoping separately and gives costs for each].—Engg. & Cont. Aug. 16 1916; p 163; pp 1¼; 20c. Comp. Air Sept. 1916; p 8123; pp 2½; 20c.

Warren, H. M.—*Electrical Distribution and Application in Mines.* [Speaks of the use of electricity for pumps, hoists, locomotives, drilling and air compression].—Coal Age July 22 1916; p 138; pp 4*; 20c.

Weston, E. M.—*Governing the Use of*

Explosives in Mines. [From "Practical Mining on the Rand." Treats on the use of explosives and correct method of placing holes].—Mg. World Aug. 26 1916; p 363; pp 2½*; 10c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up, such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; book; pp 628*; $5.

——— *Canadian Mining Corporation.* [Cost and other details of operation].—E. & M. J. Aug. 19 1916; p 348; pp 1¼; 25c.

——— *Method and General Cost of Rock Excavation for the Inlet Swamp Drainage District, Illinois.*—Engg. & Cont. Nov. 15 1916; p 429; pp ¾; 25c.

——— *New Safety Method for Drilling Tools.* [These tools have recently been invented with the idea of helping to prevent their loss in the hole].—Petro. World July 1916; p 313; pp 2*; 35c.

——— *New Under-Reamer Efficient.* [A device for use in oil-well drilling].—Oil Age Aug. 1916; p 9; pp 1½*; 35c.

——— *Recent Developments in Drilling Apparatus.* [Describes recent patents for equipment to be used with rock drills]. Mg. World Oct. 21 1916; p 705; pp 1¼; 10c.

——— *Russian Petroleum Company.* [Discusses operations for part of 1916, including profits, production and deep drilling].—Petro. World Sept. 1916; p 431; pp 3; 35c.

——— *Snake Creek Tunnel, Utah.* [A concrete tunnel. The construction and methods used in driving it are described].—M. & S. P. Aug. 5 1916; p 205; pp 2*; 20c.

SAMPLING

Burrell, G. A.;Robertson, I. W.; Oberfell, G. G.—*Black Damp in Mines.* [Deals with the occurrence of the gas, its effects on various things and methods of sampling].—U. S. Bur. of Mines Bull. 105; pp 88; 20c.

Gahl, Rudolf.—*History of the Flotation Process at Inspiration, Arizona.* [A paper read before the A. I. M. E. dealing in detail with the subject and equipment used].—Met. & Chem. Engg. Oct. 1 1916; p 393; pp 12½*; 35c.

Greaves-Walker, A. F.—*Testing Clay Properties.* [Deals with methods of sampling and determining the value of a clay deposit in the field].—B. & C. Rec. Dec. 19 1916; p 1083; pp 3*; 35c.

Hanchett, F. B.—*Daily Sampling in Square-Set Mining, Arizona.* [A method used in the Clifton-Morenci district, whereby the metal content of a set can be told before it is mined out].—Mg. World Dec. 2 1916; p 949; pp 1¾*; 10c.

Heidelberg, Fred M.—*A Portable Water Sampler.* [A device for sampling underground waters at the Copper Queen].—E. & M. J. Aug. 19 1916; p 343; pp 1¼*; 25c.

Herr, Irving.—*Sampling Placer-Gravel Deposits.* [Describes the system by which the holes were placed and method of plotting the same].—E. & M. J. Aug. 5 1916; p 261; pp ¾*; 25c.

Parr, S. W.—*Chemical Study of Illinois Coals.* [Methods of sampling in the field and laboratory are given, with a review of the results of analyses].—Ill. Geol. Surv. Bull. 3; pp 86*.

Sale, A. J.—*Drilling and Analysis of Copper Ores.* [A general discussion of errors made from taking averages of churn-drill hole samples. Also speaks of the sulpho-cyanide assay of copper].—E. & M. J. July 8 1916; p 87; pp 3¼; 25c.

Staley, Homer F.; Beecher, Milton F.—*Practical Handling of Iowa Clays with Application of Ceramic Principles.* [Methods of prospecting and testing the clay bodies are given, as well as descriptions of methods of manufacturing and properties of the burned product].—Iowa State College; Bull. 43; pp 48*.

Watts, A. S.—*The Feldspars of New England and North Appalachian States.* [Goes into the lithology of feldspar rocks in general and gives nature of deposits by states. Methods of testing for quality and concentration of rock are given].—U. S. Bur. of Mines Bull. 92; pp 181*; 35c.

Webber, Morton.—*Sampling of Mines.*—M. & S. P. Dec. 9 1916; p 846; pp ¾*; 20c.

EXPLOSIVES AND BLASTING

Balcomb, J. C.—*A Remarkable Tunnel Rapidly Driven in Brazil.* [Gives details of operation with drawings. A bonus system and unusual method of blasting are described].—Comp. Air July 1916; p 8040; pp 5*; 20c.

Brooks, E. F.—*The Prevention of Misfires.* [Speaks of the prevention as a means of curtailing higher costs and gives methods by which misfires may be stopped to some extent].—M. & S. P. Dec. 16 1916; p 871; pp 1; 20c.

Burrell, G. A.; Robertson, I. W.—*Effects of Temperature and Pressure on*

the Explosibility of Methane-Air Mixtures. [A review of the results of experimental work].—U. S. Bur. of Mines Tech. Paper 121; pp 14*; 15c.

Fay, Albert H.—*Monthly Statement of Coal Mine Fatalities in the United States.* [Contains a list of permissible explosives, lamps and motors tested prior to Aug. 31 1916].—Bur. of Mines Statement July 1916; pp 28.

Fay, Albert H.—*Production of Explosives in the United States.* [Also contains notes on coal mine accidents due to explosives and a list of permissible explosives, lamps and motors tested before May 1 1916].—U. S. Bureau of Mines Tech. Paper 159; pp 24; 15c.

Gillette, Halbert Powers.—*Handbook of Rock Excavation Methods and Costs.* [Details regarding the different methods used in rock excavation, as drilling, explosives, etc.].—Clark Book Co.; book; pp 835*; $5.

Hicks, H. L.—*Compressed Air at Rockland Lake Quarry, New York.* [Describes drilling, and blasting operations, with some information on the general operation of the quarry].—Comp. Air July 1916; p 8035; pp 4*; 20c.

Higgins, E.—*Accidents from Misfires and How to Prevent Them.* [Many causes of misfires are taken up, important among which is the making of the primer].—Mg. World July 1 1916; p 17; pp 1*; 10c.

Humphrey, D. E.—*Drilling and Blasting Shale Banks.* [Discusses several methods of drilling and blasting].—B. & C. Rec. Aug. 15 1916; p 319; pp 4½*; 35c.

Johnson, J. E., Jr.—*Blast Furnace Irregularities and Their Treatment.* [Tells of remedies for and discusses many things unusual in furnace operation, such as a chilled hearth].—Met. & Chem. Engg. July 15 1916; p 69; pp 8*; 30c.

Knight, Thomas M.—*The Priming of Charges and Firing of Blasts.* [Diagrams are given illustrating the description].—Engg. & Cont. Dec. 30 1916; p 547; pp 1¾*; 25c.

Moore, H. W.—*Blasting Practice at Chuquicamata, Chile.* [A system of electric blasting. Tunnels are made and loaded with powder for the blasting of large blocks of ground].—M. & S. P. July 8 1916; p 60; pp 2*; 20c.

Taylor, Guy B.; Cope, W. C.—*Sensitiveness to Detonation of Trinitrotoluene and Tetranitromethylanilin.* [Describes method and apparatus for making test with some results obtained].—U. S. Bur. of Mines Tech. Paper 145; pp 13; 15c.

Weston, E. M.—*Explosives and Their Use.* [Abst. from Practical Mining on the Rand].—Mg. & Engg. Rev. June 5 1916; p 216; pp 4¾*; 35c.

Weston, E. M.—*Governing the Use of Explosives in Mines.* [From "Practical Mining on the Rand." Treats on the use of explosives and correct method of placing holes].—Mg. World Aug. 26 1916; p 363; pp 2½*; 10c.

Weston, E. M.—*The Right Use of Explosives in Mining Work.* [Abst. from Practical Mining on the Rand].—Mg. World July 29 1916; p 189; pp 2; 10c.

Young, George J.—*Elements of Mining.* [Each of the departments of mine operations, as drilling, ventilation, etc., is considered briefly and separately, giving some details regarding the same].—McGraw-Hill; book; pp 628*; $5.

——— *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables].—McGraw-Hill Co.; book; pp 1172*; $4.

——— *Method and General Cost of Rock Excavation for the Inlet Swamp Drainage District, Illinois.*—Engg. & Cont. Nov. 15 1916; p 429; pp ¾; 25c.

——— *The Use of Squibs Vs. Fuses.* [The results of a thorough study made by the British Government, bringing out that in general squibs are the safest and best].—Coal Age Sept. 23 1916; p 501; pp 1½; 20c.

SHAFTS AND SHAFT SINKING

Atkinson, H. J.—*Widening of the Upcast Shaft at Tinsley Park Colliery, England.* [A paper read before the Midland Inst. of Mg., Civil and Mech. Eng.].—I. & C. Tr. Rev. Oct. 6 1916; p 424; pp 1⅙*. 35c. Coll'y Guard Oct. 6; p 651; pp 1*; 35c.

Buffum, F. D.—*Compressed Air for Sinking a Shaft.* [Abst. from Coal Age. Deals with methods of piping and handling the compressed air which was used entirely for power. Remedies for difficulties encountered are given].—Comp. Air July 1916; p 8048; pp 3*; 20c.

Cooper, Lloyd D.—*Sinking the Wallenberg Shaft, Norway.* [The work was contracted for by E. J. Longyear Co. Operations and methods are described].—E. & M. J. Nov. 4 1916; p 811; pp 3*; 25c.

Futers, T. Campbell.—*The Mechanical Equipment of Cwm Colliery, Llantwit Fardre, South Wales.* [The hoist, shaft, steam and electric equipment at the mines are described].—Coll'y Guard. Dec. 1 1916; p 1055; pp 3*; 35c.

Hall, Albert E.—*Shaft Timbering Ex-*

amples. [Drawings and description of various methods of shaft timbering are given].—E. & M. J. Sept. 30 1916; p 589; pp 1¾*; 25c.

Lawrie, W. W.; Smith, G. H.—*Concrete Shaft Equipment at the Bantjes Consolidated Mines, South Africa.* [Details of construction, costs and labor are given].—Jnl. of Chem. Met. & Mg. Soc. of S. Afr. April 1916; p 202; pp 3½*; 85c.

Miller, Benjamin Leroy; Singewald, J. T.—*The Gold Mines of Brazil.* [The two most noted mines are described. The power question, mining and refining of the ore are dealt with].—E. & M. J. July 29 1916; p 207; pp 5*; 25c.

Pleschner, O. J.—*Design for Auxiliary Shaft.* [This auxiliary hoist shaft does away with the necessity of detouring the air from the shaft around the passages leading to the other shaft compartments].—Coal Age Dec. 2 1916; p 915; pp 1½*; 20c.

Reifsneider, L. B.—*Underground Mining in Cuba.* [A method which does not interfere with operations above in surface mining. The stopes are filled after being worked out].—E. & M. J. Sept. 16 1916; p 509; pp 2¾*; 25c.

Rose, Hugh.—*Mining Practice at Santa Gertrudis, Mexico.* [Abst. from the A. I. M. E. Bulletin. Contains drawings, details and general description].—E. & M. J. Aug. 26 1916; p 371; pp 6*; 25c.

Rossback, E. J.—*Tunnel Construction on the Mill Creek Sewer.* [Methods of operating, drilling, compressed air equipment, lining with concrete and brick, etc., are among things described].—Mine & Quarry; Oct. 1916; p 907; pp 11*; 20c.

Sayre, E. A.—*Comparison of Two Methods of Shaft Sinking Through Soft Material.* [Abst. of a paper read before the A. I. M. E.].—Engg. & Cont. Sept. 20 1916; p 259; pp 5¼*; 20c.

Sayre, Edward A.—*Shaft Sinking Through Soft Material.* [Costs and methods of operation at an Iowa coal mine].—Bull. A. I. M. E. Sept. 1916; p 1523; pp 8*; 35c. Coll'y Guard. Oct. 13 1916; p 700; pp 1⅓*; 35c. West. Engg. Dec. 1916; p 463; pp 2*; 25c.

Schmidt, Frederick.—*Shaft Sinking by the Freezing Process.* [A paper read before the Manchester Mining & Geol. Soc., England].—I. & C. Tr. Rev. June 23 1916; p 720; pp 1; 35c. Coll'y Guard. June 23; p 1189; pp 4*; 35c.

Scott, W. A.—*The Tonopah Extension Mines in Nevada.*—Mg. World Nov. 11 1916; p 831; pp 1; 10c.

Taylor, M. T.—*Deep-Lead and Drift Mining in Victoria, Australia.* [Describes methods and details of methods used in going underground for gravel].—Mg. Mag. Oct. 1916; p 207; pp 12*; 50c.

Thiele, H. G.—*Re-Timbering a Four-Compartment Shaft.* [Detailed drawings and description of the method].—M. & S. P. Oct. 14 1916; p 567; pp 2½*; 20c.

——— *Carriden Coal Co.'s New Pits, England.* [Describes the formation and methods and equipment used in sinking its No. 1 and 2 shafts].—Coll'y Guard, Sept. 15 1916; p 497; pp 1½*; 35c.

——— *Concreting the Sacramento Shaft, Bisbee, Arizona.* [Details of the construction, methods of doing the work and costs for materials and labor on the same are given].—M. & S. P. Oct. 7 1916; p 521; pp 8½*; 20c.

——— *The Mount Morgan Mine and Works, Australia.* [Complete description of the geology, mining and concentrating plant of this mine, once a gold mine but now copper].—Mg. & Engg. Rev. July 5 1916; p 244; pp 9*; 35c.

LIGHTING

Balliet, Letson.—*Underground Electric Mine Lighting.* [Discusses this subject from the point of view that electric lights underground make possible more efficient operation].—Mg. World Dec. 23 1916; p 1072; pp 1; 10c.

Best, W.—*Ancient and Modern Construction of Miners' Safety Lamps.* [A paper read to the National Assn. of Coll'y Mng.].—I. & C. Tr. Rev. Nov. 24 1916; p 637; pp 1; 35c.

Bullard, E. W.—*Introduction of the Acetylene mine Lamp on the Pacific Coast.* [An account with some details on the introduction of this lamp].—Acetylene Jnl. Oct. 1916; p 185; pp 1½; 20c.

Fay, Albert H.—*Monthly Statement of Coal Mine Fatalities in the United States.* [Contains a list of permissible explosives, lamps and motors tested prior to Aug. 31 1916].—Bur. of Mines Statement July 1916; pp 28.

Gawthrop, L. B.—*Scientific Headlighting.* [On headlights for haulage motors].—Coal Age Sept. 2 1916; p 382; pp 1¼; 20c.

Koch, Richard.—*The Electric Safety Lamp.* [Figures on the cost of upkeep of these lamps].—Coal Age Oct. 7 1916; p 582; pp 1¾*; 20c.

Weigel, W. M.—*The Illuminating Power of Safety Lamps.*—Bull. A. I. M. E. Aug. 1916; p 1349; pp 11*; 35c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up, such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; book; pp 628*; $5.

——— *Cap Lamp with New Feature.* [An electric lamp with a straight filament passing horizontally across the reflector].—Coal Age Dec. 2 1916; p 918; pp 1¼*; 20c.

——— *Costs of Operating Electric Cap Lamps.*—Coal Age July 1 1916; p 17; pp ¾; 20c.

——— *G-E Miners' Lamp Approved by the U. S. Bureau of Mines.*—Mg. World Nov. 18 1916; p 869; pp 1¼*; 10c.

——— *History of the Carbide Mine Lamp from the Earliest Days to the Present Time.*—Acetylene Jnl. Dec. 1916; p 303; pp 1½*; 20c.

——— *Illumination.* [A general review of proper illumination with respect to safety on surfaces].—Anode Sept. 1916; p 1; pp 2; 20c.

——— *New Approved Safety Lamps.* [Brief descriptions of several styles].—I. & C. Tr. Rev. July 14 1916; p 38; pp 1*. Colly. Guard. July 14; p 64; pp 1*; 35c.

TELEPHONES AND SIGNALING

Clark, Walter C.—*Electricity at the Bunker Hill & Sullivan Mines, Idaho.* [On the equipment and use of electricity in the mills, rock house, for pumping, hoisting, haulage and signaling].—Jnl. Elect. Power & Gas Dec. 23 1916; p 483; pp 3¼*; 35c.

Davis, W. H.—*Hoisting-Engine Signals.* [A paper read before the North of England Inst. of Mg. and Mech. Eng.].—Coal Age Aug. 26 1916; p 336; pp 1*; 20c.

Hall, Albert E.; McFeely, George.—*Bell and Buzzer Signal System.* [On the installation and operation of the system in connection with hoisting].—E. & M. J. Oct. 21 1916; p 746; pp 1¼*; 25c.

Parker, D. J.; Steidle, E.—*The Use of Signboards and Signals in Mines.* [Published by permission of the Bureau of Mines. A general talk on advantages found in using them].—Mg. World Nov. 18 1916; p 867; pp 2¼; 10c.

Walker, Sydney F.—*Electric Signaling with Bare Wires.* [A general talk on proper practice resulting from investigations in England].—I. & C. Tr. Rev. Sept. 8 1916; p 279; pp 1; 35c.

Wheeler, R. V.; Thornton, W. M.—*Electric Signaling with Bare Wires.* [Report on the danger of ignition of inflammable gaseous mixtures by the break-flash of the signal wires].—His Majesty's Stationery Office, London; 35c.

——— *Electric Signalling in Collieries.*—I. C. Tr. Rev. Oct. 13 1916; p 453; pp 1*; 35c.

——— *Electric Signaling in Mines.*—Coll'y Guard. July 28 1916; p 157; pp 3*; 35c.

PUMPS AND PUMPING

Alderson, G. F.—*A Reservoir and Pumphouse.* [Describes the construction of the installation and itemization of costs].—E. & M. J. Sept. 23 1916; p 547; pp 1¼*; 25c.

Boardman, Charles S. — *Pumphouse Construction Under Severe Tidal Conditions.* [Description of the method and construction of the pumphouse of the Alaska Treadwell Co.].—E. & M. J. Dec. 9 1916; p 1018; pp 1¼*; 25c.

Brown, J. F. K.—*Imagination Applied to Mining.* [A review of the possible future as regards the transmission of electric power, pumping, etc. The cases are purely hypothetical].—Coal Age July 22 1916; p 142; pp 2¾; 20c.

Clark, Walter C.—*Electricity at the Bunker Hill & Sullivan Mines, Idaho.* [On the equipment and use of electricity in the mills, rock house, for pumping, hoisting, haulage and signaling].—Jnl. Elect. Power & Gas Dec. 23 1916; p 483; pp 3¼*; 35c.

Dixon, C. Y.—*Plant and Method of Dry Excavation, Livingstone Channel, Detroit River, Michigan.* [From Professional Memoirs. Pumping, drilling, costs, equipment used, etc., are included in this review].—Engg. & Cont. Nov. 15 1916; p 425; pp 2*; 25c.

Eddy, Lewis H.—*The Argonaut Mine, California.* [On the installation of a dam for storing tailings, power pumps and experimental work with flotation].—E. & M. J. Aug. 5 1916; p 265; pp 2¾*; 25c.

Gabelein, Paul W.—*Air Lifts at a Cyanide Plant.* [From the E. & M. J. describing this type of installation at the Baker Mines Co., Oregon].—Comp. Air Aug. 1916; p 8075; pp 1¼*; 20c.

Geismer, H. S.—*Handling Water in Underground Workings.* [A general discussion and details on the general use of pumps in mines].—Coal Age Sept. 2 1916; p 378; pp 3½*; 20c.

Gochnauer, H. W.—*Pumping Costs with Diesel Engines.*—Engg. Rec. April 1 1916; 20c.

Heal, C.—*Colliery Pumping Plants.* [A paper read before the National Assn. of Colliery Managers, England].—I. & C. Tr. Rev. Aug. 18 1916; p 194; pp 1; 35c.

Hopwood, William.—*Mining and Dealing with Mine Water in the Mold Coalfield, England.* [A paper read before the National Assn. of Eng., England].—I. & C. Tr. Rev. Aug. 4 1916; p 127; pp 1⅛*; 35c.

Knowles, C. R.—*The Use of Oil Engines for Pumping.* [A paper read before the Illinois section of the American Water Works Assn. The results of a number of tests on different kinds of fuel are given].—Canadian Eng. June 29 1916; p 676; pp 2¼; 35c.

McEoceid, D.—*The Selection of Centrifugal Pumps.* [From the Engineer, giving curves and formulas for the rapid calculation and requirements of pumps for any class of work].—Met. & Chem. Engg. Dec. 15 1916; p 679; pp 2*; 35c.

Miller, H. L.—*Efficient Mine Pumping.* [The adaptability of different types is taken up].—Mg. & Oil Bull. June 1916; p 158; pp 2*; 25c.

Sargeant, E. W.—*Centrifugal Pumps and Dredgers.* [Confined mostly to the use and construction of these pumps as practiced in England].—Lippincott & Co.; book; pp 188*; $3.25.

Sargeant, E. W.—*Centrifugal Pumps and Suction Dredges.* [Among the features of the book is the simple and non-technical manner in which all things are described].—Chas. Griffin & Co., London; book; pp 188*; $3.

Scott, W. A.—*Leadville Pumping and Drainage Projects.* [Descriptions are given of methods used and plants at various places in the district which use different kinds of power, styles of pumps and methods of operation].—Mg. World Sept. 23 1916; p 533; pp 3¾*; 10c.

Scott, W. A.—*Operations of Silver King Coalition Mines Co., Utah.* [A general description of operations and equipment, including pumping and hoisting].—Mg. World Sept. 9 1916; p 447; pp 3*; 10c.

Warren, H. M.—*Electrical Distribution and Application in Mines.* [Speaks of the use of electricity for pumps, hoists, locomotives, drilling and air compression].—Coal Age July 22 1916; p 138; pp 4*; 20c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up, such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; book; pp 628*; $5.

——— *Multi-Stage Centrifugal Pump Improved.* [Detailed description of the pump's construction].—Mg. World Sept. 9 1916; p 455; pp 1¼*; 10c.

——— *Prices of Machinery for Mines.* [The average prices for mine equipment are plotted in curves for separate classes of machinery, according to the size and capacity].—Coal Age July 1 1916; p 22; pp 3*; 20c.

——— *Triplex Pumps in the Wisconsin Zinc Mines.*—Mg. World Nov. 11 1916; p 829; pp 1*; 10c.

TUNNELS AND TUNNELING

Balcomb, J. C.—*A Remarkable Tunnel Rapidly Driven in Brazil.* [Gives details of operation, with drawings. A bonus system and unusual method of blasting are described].—Comp. Air July 1916; p 8040; pp 5*; 20c.

Hammond, L. M. — *Tunnel Survey Methods Used in Driving Strawberry Tunnel, Utah.* [Taken from Engg. News. Details of methods and peculiarities followed in the surveying work are given].—E. & M. J. Dec. 16 1916; p 1050; pp 2*; 25c.

Rossback, E. J.—*Tunnel Construction on the Mill Creek Sewer.* [Methods of operating, drilling, compressed air equipment, lining with concrete and brick, etc., are among things described].—Mine & Quarry Oct. 1916; p 907; pp 11*; 20c.

Scott, W. A.—*The Roosevelt Tunnel and Cripple Creek Mine Operations.* [Reviews the operations and equipment at the properties of the district].—Mg. World Oct. 7 1916; p 613; pp 5*; 10c.

Taylor, M. T.—*Deep-Lead and Drift Mining in Victoria, Australia.* [Describes methods and details of methods used in going underground for gravel].—Mg. Mag. Oct. 1916; p 207; pp 12*; 50c.

Tillson, B. F.—*Hammer Drill Records at the Franklin Mines, New Jersey.* [From a paper read before the A. I. M. E. Results obtained in drifting, stoping, raising, etc., are given, with costs].—Comp. Air Sept. 1916; p 8123; pp 2½; 20c.

——— *Concrete Water Tunnel Lining at Chicago..* [Abst. from an article in Engg. News].—E. & M. J. Aug. 12 1916; p 299; pp 2¼*; 25c.

——— *Ingenious Special Devices for Tunnel Surveys.* [Abst. from Eng. News. Instruments and devices for marking are described].—E. & M. J. July 22 1916; p 180; pp 1¾*; 25c.

——— *Snake Creek Tunnel, Utah.* [A concrete tunnel. The construction and

methods used in driving it are described].—M. & S. P. Aug. 5 1916; p 205; pp 2*; 20c.

——— *Winnipeg-Shoal Lake Aqueduct Construction.* [Included in this detailed description are sketch drawings of the work, which is of reinforced concrete].—Canadian Eng. Nov. 16 1916; p 401; pp 5½*; 35c.

MINE WATERS

Geismer, H. S.—*Handling Water in Underground Workings.* [A general discussion and details on the general use of pumps in mines].—Coal Age Sept. 2 1916; p 378; pp 3½*; 20c.

Hopwood, William.—*Mining and Dealing with Mine Water in the Mold Coalfield, England.* [A paper read before the National Assn. of Eng., England].—I. & C. Tr. Rev. Aug. 4 1916; p 127; pp 1⅓*; 35c.

Hopwood, William.—*Mining and Dealing with Mine Water in the Buckey Coalfield, England.* [A paper read before the National Assn. of Colliery Mgrs. Details are given of the methods used in this mine].—I. & C. Tr. Rev. Sept. 15 1916; p 314; pp 3*; 35c.

Newman, M. F.—*Methods of Softening and Filtering Mine Water.* [Describes a plant for filtering the water so as to make it suitable for use in boilers].—Mg. World Dec. 9 1916; p 985; pp 2¼*; 10c.

Scott, W. A.—*The Old Dominion Copper Co.'s Operations, Arizona.* [The questions of hoisting, mine waters and concentration by flotation are dealt with].—Mg. World July 8 1916; p 43; pp 2¾*; 10c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up, such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; book; pp 628*; $5.

Young, C. M.—*The Chemistry of Mine Water.* [Brings out the chemistry of methods used to reduce the corrosive action of the water and it is pointed out that products from the water might be made to pay for the treatment].—Coal Age Oct 28 1916; p 704; pp 4*; 20c.

MINE GAS

Ashworth, James.—*The Composition of Natural Gas.* [Discussion on coal mine gases].—Coal Age July 22 1916; p 146; pp 1¼; 20c.

Burrell, G. A.; Robertson, I. W.—*Effects of Temperature and Pressure on the Explosibility of Methane-Air Mixtures.* [A review of the results of experimental work].—U. S. Bur. of Mines Tech. Paper 121; pp 14*; 15c.

Burrell, G. A.; Seibert, F. M.—*Gas Analysis as an Aid in Fighting Mine Fires.* [Discusses the change in air during a mine fire and the effects of gas on the fire and its origin. Methods of sampling and analyzing are given].—U. S. Bur. of Mines Tech. Paper 13; pp 16*.

Burrell, G. A.; Robertson, I. W.; Oberfell, G. G.—*Black Damp in Mines.* [Deals with the occurrence of the gas, its effects on various things and methods of sampling].—U. S. Bur. of Mines Bull. 105; pp 88; 20c.

Graham, Thomas.—*Gaseous Mines in the Crow's Nest Pass Coal Field, British Columbia.* [A paper read before the Mine Inspector's Inst., in which considerable is said of the mines of the district and methods of sampling the air].—Coal Age Dec. 2 1916; p 920; pp 3½*; 20c.

Means, C. M.—*New Electrical Device for Detecting Gas.* [A paper read before the Coal Mining Inst. of America. The detector consists of a catalytic and non-catalytic glower side by side in glass and gauze container].—Coal Age Dec. 16 1916; p 1003; pp 1*; 20c.

Thornton, W. M.—*Influence of Pressure on the Electrical Ignition of Methane.* [A paper read before the British Assn. Sec. G, dealing with experimental work. Curves are shown].—Coll'y Guard. Sept. 15 1916; p 503; pp 2*; 35c.

Tompkins, Norton.—*Explosive Gas in Coal Mines.* [Information gained while studying evidence in regard to Bath thermal springs].—Coal Tr. Bull. Sept. 15 1916; p 48; pp 3; 25c.

Yuvenalieff, N.—*Gas Liberation in Russian Mines and Its Cause.* [From Gorno-Savodskoie Delio].—C. Tr. Bull. Aug. 1 1916; p 53; pp 3; 25c.

Yuvenalieff, N.—*On the Liberation of Gas in Mines.* [From the Gorno-Savodskoie Dielo, explaining the causes for the liberation of mine gases].—Coll'y Guard. July 7 1916; p 17; pp 1⅓*; 35c.

VENTILATION

Buffum, F. D.—*Compressed Air for Sinking a Shaft.* [Abst. from Coal Age. Deals with methods of piping and handling the compressed air which was used entirely for power. Remedies for difficulties encountered are given].—Comp. Air July 1916; p 8048; pp 3*; 20c.

Chambers, G.—*The Atmospheric Problem in the Deepest Mine.* [Excerpts from the superintendent's report of the Morro Velho mine of the St. John del Rey Mining Co., Brazil, dealing with the ventilation of the mine].—Mg. World Sept. 30 1916; p 575; pp 2; 10c.

Crankshaw, H. M.—*Mining and Ventilation Methods in Thick Pitching Beds.* [A paper to be read at the A. I. M. E. Arizona meeting].—Coal Tr. Bull. Aug. 15 1916; p 23; pp 5*; 25c.

Crankshaw, H. M.—*Mining Methods Employed in the Anthracite Field.* [A description of the stratigraphy and details of methods of underground operation and mining].—Coal Age Sept. 1916; p 452; pp 4*; 20c.

Crankshaw, H. M.—*Modern Methods of Mining and Ventilating Thick Pitching Beds.* [Confined to coal deposits. Details and drawings of the methods are shown].—Bull. A. I. M. E. July 1916; p 1159; pp 11*; 35c.

Graham, Thomas.—*The Coal Creek Collieries, British Columbia.* [Abstract of a paper read before the Mine Inspectors' Inst. in which special stress is given analysis of the air in the mine workings].—Coal Age Dec. 9 1916; p 964; pp 2¾*; 20c.

Johnson, Moses. — *Ventilating Mines When Tipples Are on Fire.* [Diagrams are given to illustrate the methods].—Bull. Canadian Mg. Inst. July 1916; p 655; pp 7*; 35c.

Lewis, W. K.—*Formulas for the Flow of Gases.* [Many formulas are given, derived and discussed which may be applied to work in mine ventilation].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1133; pp 6½; 60c.

Miller, Benjamin Leroy; Singewald, J. T.—*The Gold Mines of Brazil.* [The two most noted mines are described. The power question, mining and refining of the ore are dealt with].—E. & M. J. July 29 1916; p 207; pp 5*; 25c.

Rossback, E. J.—*Tunnel Construction on the Mill Creek River.* [Methods of operating, drilling, compressed air equipment, lining with concrete and brick, etc., are among things described].—Mine & Quarry Oct. 1916; p 907; pp 11*; 20c.

Sampson, R. J.—*An Economical System of Mining.* [The system allows of complete extraction of the ground at a low cost and consists mostly of pillar drawing. A tenacious sandstone roof permits the running of wide entries].—Coal Age Sept. 23 1916; p 494; pp 2¼*; 20c.

Shaw, Wm.—*Coal Dust, How It Affects the Mines in Crowsnest Pass.* [Speaks of the peculiarities of coal dust in this mine and methods employed to cope with it].—Bull. Canadian Mg. Inst. July 1916; p 647; pp 8; 35c.

Tally, Robert E.—*Mine-Fire Methods Employed by the United Verde Copper Co., Arizona.* [Causes, methods of prevention, ventilation and methods of handling a stope on fire are considered].—Bull. A. I. M. E. Sept. 1916; p 1545; pp 9*; 35c.

Williams, R. Y. — *Mine Ventilation Stoppings.* [Costs of construction and maintaining are given with methods of constructing the stoppings, with special reference to Illinois fields].—U. S. Bur. of Mines Bull. 99; pp 30*; 20c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up, such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; book; pp 628*; $5.

——— *Air and Temperature in Deep Mining.* [Tells of ventilation in the deepest mine in the world, Brazil, operating at 5,826 ft. and intending to go to 7,626 ft. vertically].—Mg. World Aug. 12 1916; p 284; pp 2¼; 10c.

——— *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables]. — McGraw-Hill Co.; book; pp 1172*; $4.

——— *Equipment of the Valleyfield Colliery.* [Gives drawings and description of the steam-turbo and electric plants, besides a description of the coal washing plant and fan and boiler house].—Coll'y Guard. Nov. 17 1916; p 951; pp 2⅓*; 35c.

——— *Queensland Mines Inspection.* [Labor, wages, accidents, ventilation, etc.]—Queen. Gov't Mg. Jnl. July 15 1916; p 329; pp 3; 35c.

——— *Snake Creek Tunnel, Utah.* [A concrete tunnel. The construction and methods used in driving it are described].—M. & S. P. Aug. 5 1916; p 205; pp 2*; 20c.

SUPPORTS: PROPS, PILLARS, TIMBERS, STOWING, ETC.

Bateman, E.—*The Relation Between the Specific Gravity of Zinc Chloride Solutions and Their Concentrations.* [Gives specific data and curves].—Wood-Preserving Sept. 1916; p 54; pp 2¼*; 35c.

Crankshaw, H. M.—*Modern Methods of Mining and Ventilating Thick Pitching Beds.* [Confined to coal deposits. Details and drawings of the methods are

shown].—Bull. A. I. M. E. July 1916; p 1159; pp 11*; 35c. Coal Tr. Bull. Aug. 15 1916; p 23; pp 5*; 25c.

Crankshaw, H. M.—*Mining Methods Employed in the Anthracite Field.* [A description of the stratigraphy and details of methods of underground operation and mining].—Coal Age Sept. 1916; p 452; pp 4*; Oct. 7 1916; p 570; pp 5¾*; 40c.

Dewell, H. D. — *Timber Framing.* [Speaks of the strength of timbers according to the direction of the stress with respect to the wood fibers].—Western Engg. July 1916; p 251; pp 6*; 20c.

Frood, G. E. B.—*South African Mining in* 1915. [Deals entirely with coal mining, production, accidents, timbering, sanitation and stone dusting].—Coll'y Guard. Nov. 10 1916; p 905; pp 1; 35c.

Hall, Albert E.—*Shaft Timbering Examples.* [Drawings and description of various methods of shaft timbering are given].—E. & M. J. Sept. 30 1916; p 589; pp 1¾*; 25c.

Horrocks, H. E.—*A Pacific Coast Treating Plant.* [Describes the Pacific Coast Creosoting Co.'s plant equipment and operation].—Wood-Preserving Sept. 1916; p 51; pp 3*; 35c.

Sayre, E. A.—*Comparison of Two Methods of Shaft Sinking Through Soft Material.* [Abst. of a paper read before the A. I. M. E.].—Engg. & Cont. Sept. 20 1916; p 259; pp 5¼*; 20c.

Scott, David B.—*Stoping Methods of the Miami Copper Co., Arizona.* [On the methods of haulage and stoping used in extracting this large body. Several stoping methods are being used].—Bull. A. I. M. E. June 1916; p 1031; pp 17*; 35c.

Simpson, F. L. G.—*A Description of the Methods of Working Out the Pillars at the Mohpani Mines, India, by means of Packing and a Comparison of the Dry and Wet Systems of Packing.* [Seven methods are herein described].—Trans. Mg. & Geol. Inst. of India Oct. 1916; p 29; pp 20*; $1.

Smith, Lowry.—*Penetration of Preservatives.* [From "Railway Maintenance Engineer." A table is given of specific data].—Wood-Preserving Sept. 1916; p 66; pp 2¼; 35c.

Tallant, J. D.—*Pillar Caving at the Braden Mine.* [Peculiarities of the method and its operation in this particular ground].—Teniente Topics June 1916; p 1; pp 6*; 35c.

Thiele, H. G.—*Re-Timbering a Four-Compartment Shaft.* [Detailed drawings and description of the method].—M. & S. P. Oct. 14 1916; p 567; pp 2½*; 20c.

Watts, A. C.—*Coal-Mining Methods in Utah.—II.* [Various methods for working superimposed beds simultaneously].—Coal Age Aug. 12 1916; p 258; pp 5*; 20c.

Wilson, Philip D.—*Comparison of Stoping Methods at Calumet & Arizona Mine.* [Abst. from the bulletin of the A. I. M. E. Description of methods used and comparison of costs and advantages].—M. & S. P. Aug. 26 1916; p 315; pp 3½*; 20c.

Wilson, P. D.—*Stoping in the Calumet & Arizona Mines, Bisbee, Arizona.* [Gives detail of procedure for systems used as square-setting, top-slicing, caving systems, etc.].—Bull. A. I. M. E. July 1916; p 1099; pp 19*; 35c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up, such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; book; pp 628*; $5.

Young, George J.—*Elements of Mining.* [Each of the departments of mine operations, as drilling, ventilation, etc., is considered briefly and separately, giving some details regarding the same].—McGraw-Hill; book; pp 628*; $5.

HOISTS AND HOISTING

Bowles, Oliver.—*The Technology of Marble Quarrying.* [Takes up methods of operation and accounting, with a study of the mineralogical constituents of the rock, which tend to vary its properties and grade].—U. S. Bur. of Mines Bull. 106; pp 174*; 40c.

Burch, H. K.—*The Inspiration Mine Plant.* [Abst. from a paper read before the A. I. M. E. Describes the equipment and methods used for handling the ore from the mine, both underground and on surface].—E. & M. J. Sept. 23 1916; p 537; pp 5¾*; 25c.

Burch, H. Kenyon; Whiting, M. A.—*Automatic Electric Hoist at the Inspiration Mine, Arizona.* [Abstract of a paper read before the A. I. M. E. The hoist is driven by motors which are automatically driven].—M. & S. P. Dec. 2 1916; p 801; pp 5¾*; 20c.

Clark, Walter C.—*Electricity at the Bunker Hill & Sullivan Mines, Idaho.* [On the equipment and use of electricity in the mills, rock house, for pumping, hoisting, haulage and signaling].—Jnl. Elect. Power & Gas Dec. 23 1916; p 483; pp 3¼*; 35c.

Davis, W. H.—*Hoisting-Engine Signals.* [A paper read before the North of

England Inst. of Mg. and Mech. Eng.].—Coal Age Aug. 26 1916; p 336; pp 1*; 20c.

Eaton, S. Ford.—*Driving a 1,200-Ft. Raise.* [A 10 by 20-ft. raise advancing at from 68 to 128 ft. per month. Methods employed and reasons for using the same are given].—E. & M. J. Sept. 9 1916; p 461; pp 3¾*; 25c.

Futers, T. Campbell.—*The Mechanical Equipment of Cwm Colliery, Llantwit Fardre, South Wales.* [The hoist, shaft, steam and electric equipment at the mines are described.—Coll'y Guard. Dec. 1 1916; p 1055; pp 3*; 35c.

Higgins, Will C.—*Electric Hoisting Plant of the Eagle & Blue Bell Co., Utah.* [General description of the plant, compressor and mine workings].—S. L. Mg. Rev. Nov. 15 1916; p 15; pp 2*; 25c.

Hood, O. P.—*Safety in Hoisting and Slope Haulage.* [Published by permission of the U. S. Bureau of Mines. A talk and discussion on preventatives and accidents which have occurred].—Mg. World Nov. 11 1916; p 823; pp 1¼; 10c.

Hunner, H. H.—*Concrete Idler Stands.* [A type constructed and used at the Isabella mine, Palmer, Mich. Some costs of construction are given].—E. & M. J. July 22 1916; p 179; pp 1*; 25c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.

Schiefer, H. V.—*An Automatic Tipple Near Houtzdale, Pa.* [Two men handle the tipple with a capacity of 2500 tons per day, and they handle 8 cars per minute. Line drawings and description of the tipple are given].—Coal Age Dec. 23 1916; p 1040; pp 4*; 20c.

Scott, Harry E.—*Safety for Hoisting Engineers.* [Practical experiences in the field].—E. & M. J. Oct. 21 1916; p 745; pp 1; 25c.

Scott, W. A.—*Operations of Silver King Coalition Mines Co., Park City, Utah.* [A general description of operations and equipment, including pumping and hoisting].—Mg. World Sept. 9 1916; p 447; pp 3*; 10c.

Scott, W. A.—*The Old Dominion Copper Co.'s Operations, Arizona.* [The questions of hoisting, mine waters, and concentration by flotation are dealt with].—Mg. World July 8 1916; p 43; pp 2¾*; 10c.

Warren, H. M.—*Electrical Distribution and Application in Mines.* [Speaks of the use of electricity for pumps, hoists, locomotives, drilling and air compression].—Coal Age July 22 1916; p 138; pp 4*; 20c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up, such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; book; pp 628*; $5.

——— *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables].—McGraw-Hill Co.; book; pp 1172*; $4.

——— *Coedely Colliery, England.* [Describes the power plant and general surface equipment, with some details].—I. Tr. Rev. Dec. 8 1916; p 693; pp 3*; 35c.

——— *Electric Winding in South Yorkshire Collieries, England.*—Coll'y Guard. Aug. 18 1916; p 301; pp 1⅛*; 35c.

——— *Hoist Recorder for Mine and Elevators.*—Mg. World Sept. 16 1916; p 501; pp 1*; 10c.

——— *Koepe Winding at Plenmeller Colliery, England.*—I. & C. Tr. Rev. July 21 1916; p 65; pp 3*; 35c.

——— *Prices of Machinery for Mines.* [The average prices for mine equipment are plotted in curves for separate classes of machinery, according to the size and capacity].—Coal Age July 1 1916; p 22; pp 3*; 20c.

——— *Surface Plant at Brodsworth Main Colliery, England.* [Turbines using mixed pressure steam are used. Hoist, boilers, compressed air, etc., are described.]—Coll'y Guard. Sept. 1 1916; p 401; pp 1½*; 35c.

DREDGING

Alderson, Matt. W.—*Mining Possibilities in Colombia, S. A.* [The author's experience in placer and vein operations for gold in that country].—Mg. World Aug. 26 1916; p 367; pp 2¼*; 10c.

Eakin, H. M.; Mertie, J. B.; Harrington, G. L.—*The Cosna-Nowitna and Ruby-Kuskokwim Regions, Alaska.* [The geology, geography and mineral resources of the country are first reviewed and followed by separate descriptions of the districts].—U. S. G. S. Bull. 642-H; pp 56*.

Eddy, Lewis H.—*Yuba No. 15 All-Steel Gold Dredge.* [A general detailed description of the dredge and its operation].—E. & M. J. Aug. 19 1916; p 329; pp 2*; 25c.

Jennings, Hennen.—*Dredging in Montana.* [From a U. S. G. S. bulletin giving costs of operation and construction of

dredges used].—M. & S. P. Sept. 23 1916; p 465; pp 2½*; 20c.

Jennings, Hennen; Janin, Charles.—*The History and Development of Gold Dredging in Montana.* [Mostly on the Ruby district. One chapter is confined to placer mining methods and operating costs.].—U. S. Bur. of Mines Bull. 121; pp 63*; 40c.

Payne, F. W.—*Dredging for Minerals.* [Deals with the past and present operation of dredges by different companies, pointing out causes for their failure and success].—Mg. & Engg. Rev. Oct. 5 1916; p 17; pp 1¾; 35c.

Payne, F. W.—*Dredging for Minerals: Past and Present.* [From the Mining & Engineering Review, dealing with the operation of various dredging projects of both the past and present in New Zealand, Australia, and the Malay States].—Mg. World Dec. 16 1916; p 1029; pp 1½; 10c.

Payne, Henry M.—*Mining the Frozen Gravels of the Arctic.* [A general account of operations, productions, etc., in Siberia].—Sibley Jnl. Oct. 1916; p 2; pp 4½*; 30c.

Payne, H. M.—*Mining the Frozen Gravels of Siberia and the Yukon.* [Details of methods used, results obtained and costs of carrying on operations].—Bull. Mg. & Met. Soc. of Amer. Sept. 30 1916; p 204; pp 11½; 35c.

Purington, C. W.; Smith, R. E.—*Winter Sluicing at the Lenskoi Gold Mines, Siberia.* [Describes the methods and plant used for handling the frozen gravel by thawing and treating at once. Mining, construction and other operating costs are given].—Mg. Mag. Sept. 1916; p 143; pp 9*; 50c.

Sargeant, E. W.—*Centrifugal Pumps and Dredgers.* [Confined mostly to the use and construction of these pumps as practiced in England].—Lippincott & Co.; book; pp 188*; $3.25.

Sargeant, E. W.—*Centrifugal Pumps and Suction Dredges.* [Among the features of the book is the simple and non-technical manner in which all things are described].—Chas. Griffin & Co., London; book; pp 188*; $3.

Sibley, Robert.—*The Most Powerful Dredge Afloat.* [The dredge is in California and is electrically operated].—Jnl. of Elect., Power & Gas Nov. 11 1916; p 371; pp 3¼*; 35c.

Smith, Howard D. — *Gold Saving on Dredges.* [Results are tabulated and drawings of jigs, etc., used in saving the gold from the dredged gravel are shown].—M. & S. P. Aug. 5 1916; p 202; pp 2¼*; 20c.

Smith, Sumner S.—*The Cache Creek Dredge, Alaska.* [Describes the dredge, its fuel question and the handling of the gravel from the dredge in recovering the gold].—M. & S. P. Dec. 23 1916; p 908; pp 2*; 20c.

Weeks, Walter S.—*The Launching of the Yuba No.* 16 *Dredge, California.*—M. & S. P. Dec. 16 1916; p 872; pp 2*; 20c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up, such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; book; pp 628*; $5.

Young, Ralph A.—*Testing of Dredge Bucket Pins.* [On the use of carbon-steel instead of more expensive alloyed steels]. E. & M. J. Aug. 26 1916; p 377; pp 2¼*; 25c.

——— *Gold Dredge at Hammonton, California.* [Reported as the largest ladder dredging bucket constructed].—Engg. Rec. June 24 1916; p 20c.

——— *Gold Dredging in Yukon.* [Abstract of a paper published by the Minister of Interior, Canada. The doings and equipment of operating companies in the district are reviewed].—Canadian Mg. Jnl. Nov. 15 1916; p 535; pp 10¾*; 35c.

——— *Method and General Cost of Rock Excavation for the Inlet Swamp Drainage District, Illinois.*—Engg. & Cont. Nov. 15 1916; p 429; pp ¾; 25c.

——— *Placer Mining in Yukon, Methods and Costs of.* [Extract of a report published by the Minister of Interior, Ottawa, Ont.].—Canadian Mg. Jnl. Nov. 1 1916; p 506; pp 3¾; 35c

POWER SHOVELS AND EXCAVATORS

Brantly, J. E.—*A Report on the Limestones and Marls of the Coastal Plain of Georgia.* [The geology of the formation and descriptions of deposits by counties. The uses and preparation of the rock are also given].—Georgia Geol. Surv. Bull. No. 21; pp 300*.

Dixon, C. Y.—*Plant and Method of Dry Excavation, Livingstone Channel, Detroit River, Michigan.* [From Professional Memoirs. Pumping, drilling, costs, equipment used, etc., are included in this review].—Engg. & Cont. Nov. 15 1916; p 425; pp 2*; 25c.

Phalen, W. C.—*The Conservation of Phosphate Rock in Tennessee.* [On the geology, nature and genesis of the de-

posits and methods of stripping and mining the deposits, with notes on production].—Res. of Tenn. Oct. 1916; p 193; pp 24*.

——— *Hulett Unloader as Applied to the Handling of Copper Ore.* [An excavator to handle the leached sands from the tanks at the plant of the New Cornelia Copper Co., Ariz.].—Mg. World Dec. 2 1916; p 951; pp 1*; 10c.

——— *Modern Gravel Excavation.* [A description of the operations of the John B. Rose Co.'s plant and gravel pit at Marlboro, N. Y.].—Excavating Eng. Dec. 1916; p 91; pp 2¾*; 20c.

——— *Ray Consolidated Copper Co., Developing the Property with an Electric Dragline Excavator.* [Describes an electrically operated dragline excavator mounted on caterpillars at Hayden, Ariz.].—Excavating Eng. Dec. 1916; p 95; pp 3½*; 20c.

——— *The Plant of the Dolomite Products Co., Narlo, Ohio.* [The plant description includes excavating in the open-pit, on surface and haulage of the broken materials].—Excavating Eng. July 1916; p 371; pp 4*; 20c.

HYDRAULIC MINING

Barnes, Alfred A.—*Hydraulic Flow Reviewed.* [Gives formulas, etc., and is confined mostly to theory as applied to practice].—Spon & Chamberlain, N. Y.; book; pp 152*; $4.50.

Brown, G. Chester.—*Mines and Mineral Resources of Shasta, Siskiyou and Trinity Counties, California.* [Copper and gold are the principal minerals, though many others occur in the district].—Calif. Mg. Bur.; pp 192*.

Eakin, H. M.; Mertie, J. B.; Harrington, G. L.—*The Cosna-Nowitna and Ruby-Kuskokwim Regions, Alaska.* [The geology, geography and mineral resources of the country are first reviewed and followed by separate descriptions of the districts].—U. S. G. S. Bull. 642-H; pp 56*.

Scobey, Fred C.—*The Flow of Water in Wood-Stave Pipe.* [Tables, curves and text on the practical theory and formulas used in connection with wood piping and a discussion of the adaptability of wood pipe].—U. S. Dept. of Agr. Bull. 376; pp 96*.

——— *Placer Mining in Yukon, Methods and Costs of.* [Extract of a report published by the Minister of Interior, Ottawa, Ont.].—Canadian Mg. Jnl. Nov. 1 1916; p 506; pp 3¾; 35c.

MINING COSTS

Arnold, C. E.—*Cost and Extraction in the Selection of a Mining Method.* [Costs of various operations and systems are discussed].—Bull. A. I. M. E. Sept. 1916; p 1519; pp 4*; 35c.

Ayer, Frank.—*Reducing Air-Drill Repair Costs.* [A general talk pointing out various ways by which this cost can be reduced].—E. & M. J. Nov. 11 1916; p 864; pp 2*; 25c.

Bacon, Raymond F.; Hamor, William A.—*The American Petroleum Industry.* [In Vol. I the history and geology, etc., regarding oil wells is taken up, while Vol. II is on refining of oil].—McGraw-Hill Co.; books; Vol. 1 pp 446*; Vol. II pp 517*; $5 each.

Bain, H. Foster.—*Labor Problems in African Mines.* [A discussion of labor, its comparative costs, with mine production, and a general description, with respect to their ways and character].—Mg. Mag. Sept. 1916; p 135; pp 8*; 50c.

Balcomb, J. C.—*A Remarkable Tunnel Rapidly Driven in Brazil.* [Gives details of operation with drawings. A bonus system and unusual method of blasting are described].—Comp. Air July 1916; p 8040; pp 5*; 20c.

Brennan, Thomas.—*Good Results Obtained in the Pittsburgh Seam.* [A system of room and pillar mining in western Pennsylvania. Points on track laying and mining costs are also given].—Coal Age Dec. 23 1916; p 1038; pp 2; 20c.

Clapp, W. Howard.—*Economics and Costs of Motor Truck Operation.* [A paper read before the Amer. Soc. of Mech. Eng. The costs of trucks and various details in the cost of their operation is given].—Canadian Eng. Nov. 9 1916; p 383; pp 3¾*; 35c.

Cook, Paul R.—*Cyaniding Clayey Ore at the Buckhorn Gold Mine, Nevada.* [Crushing, cyaniding, and details of mining and milling costs per ton are considered].—Bull. A. I. M. E. Sept. 1916; p 1555; pp 9*; 35c.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine, with respect to their production, activities, profits and costs].—T. & N. O. Commission, Toronto; Report; pp 7*.

Davies, R. S.—*Hydraulic Packing at Ballarpur Colliery, India.* [Costs and details of operation are given].—Trans. Mg. & Geol. Inst. of India Sept. 1916; p 53; pp 10; $1.25.

Dixon, C. Y.—*Plant and Method of Dry*

Excavation, Livingstone Channel, Detroit River, Michigan. [From Professional Memoirs. Pumping, drilling, costs, equipment used, etc., are included in this review].—Engg. & Cont. Nov. 15 1916; p 425; pp 2*; 25c.

French, Harold.—*Prospecting: A Suggestion.* [Describes a theoretical method of systematic prospecting for a syndicate].—M. & S. P. July 22 1916; p 117; pp 1½; 20c.

Gillette, Halbert Powers.—*Handbook of Rock Excavation Methods and Costs.* [Details regarding the different methods used in rock excavation, as drilling, explosives, etc.].—Clark Book Co.; book; pp 835*; $5.

Green, R.—*Horse Haulage vs. Compressed Air Haulage at Collieries.* [In discussing the subject a comparison of actual costs is made].—Canadian Mg. Inst. Bull. Aug. 1916; p 711; pp 6; 35c. Comp. Air Sept. 1916; p 8116; pp 2; 20c. Mg. World Oct. 7 1916; p 625; pp 1¼; 10c.

Gudgeon, C. W.—*The Scheelite Gold Mines of Otago, New Zealand.* [Several properties are described. In each the ore body, milling process and milling and mining costs are dealt with].—Proc. Aus. Inst. M. E. No. 21 1916; p 37; pp 14*; 65c.

Hunner, H. H.—*Concrete Idler Stands.* [A type constructed and used at the Isabella mine, Palmer, Mich. Some costs of construction are given].—E. & M. J. July 22 1916; p 179; pp 1*; 25c.

Jennings, Hennen; Janin, Charles.—*The History and Development of Gold Dredging in Montana.* [Mostly on the Ruby district. One chapter is confined to placer mining methods and operating costs].—U. S. Bur. of Mines Bull. 121; pp 63*; 40c.

Jennings, Hennen.—*Dredging in Montana.* [From a U. S. G. S. Bulletin, giving the costs of operation and construction of dredges used.—M. & S. P. Sept. 23 1916; p 465; pp 2½*; 20c.

Larson, A. G.; Lakes, Arthur, Jr.—*Slocan Star Mine, British Columbia.* [Abstract of a report made by the authors on this mine, in which details regarding it are given].—Mg. & Engg. Rec. Oct. 1916; p 96; pp 4¼*; 35c.

Lawrie, W. W.; Smith, G. H.—*Concrete Shaft Equipment at the Bantjes Consolidated Mines, South Africa.* [Details of construction, costs and labor are given].—Jnl. of Chem. Met. & Mg. Soc. of S. Afr. April 1916; p 202; pp 3½*; 85c.

Lewis, Robert S.—*Amortization and Depreciation.* Deals with methods for computing the same and states that omission of the same in computing costs is a great mistake, which is often made].—M. & S. P. Sept. 23 1916; p 456; pp 3*; 20c.

Mathews, P. L.—*Making a Cost Profile.* [Method for plotting costs in curve form].—Coal Age Nov. 4 1916; p 751; pp 1¾*; 20c.

McDonald, P. B.—*Mining Around Lovelock, Nevada.* [Costs and accounts of the silver properties in the district, with some information on their production is given. The principal companies are Rochester and Seven Troughs Coalition].—M. & S. P. July 1 1916; p 14; pp 2*; 20c.

McGrath, J. W.—*The Iron Mines of Wabana, Newfoundland.* [Describes the geology, nature of the ores, disposal of the same and mining costs].—Canadian Mg. Jnl. July 1 1916; p 315; pp 2¾; 35c.

Murray, R. M.—*Mining Methods at Mount Lyell, Australia.* [Abst. of a paper read before the Aust. I. of M. E., describing the method of stoping the large body].—E. & M. J. Sept. 2 1916; p 416; pp 3¼*; 25c.

Parsons, L. A.—*Diamond Drilling at Sudbury, Ontario.* [Details of operation and costs].—E. & M. J. Aug. 26 1916; p 381; pp 1¾; 25c.

Payne, H. M.—*Mining the Frozen Gravels of Siberia and the Yukon.* [Details of methods used, results obtained and costs of carrying on operations].—Bull. Mg. & Met. Soc. of Amer. Sept. 30 1916; p 204; pp 11½; 35c.

Purington, C. W.; Smith, R. E.—*Winter Sluicing at the Lenskoi Gold Mines, Siberia.* [Describes the methods and plant used for handling the frozen gravel by thawing aud treating at once. Mining construction and other operating costs are given].—Mg. Mag. Sept. 1916; p 143; pp 9*; 50c.

Reifsneider, L. B.—*Underground Mining in Cuba.* [A method which does not interfere with operations above in surface mining. The stopes are filled after being worked out].—E. & M. J. Sept. 16 1916; p 509; pp 2¾*; 25c.

Rickard, T. A.—*Reopening of Old Mines Along the Mother Lode, California.* [A review of conditions past and present, with cost and production figures given].—M. & S. P. Aug. 12 1916; p 236; pp 5½*; 20c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.

Rose, Hugh.—*Mining Practice at Santa Gertrudis, Mexico.* [Abst. from the A. I. M. E. Bulletin. Contains drawings, details and general description].—E. & M. J. Aug. 26 1916; p 371; pp 6*; 25c.

Sayre, Edward A.—*Shaft Sinking Through Soft Material.* [Costs and methods of operation at an Iowa coal mine].—Bull. A. I. M. E. Sept. 1916; p 1523; pp 8*; 35c. West. Engg. Dec. 1916; p 463; pp 2*; 25c.

Scott, Herbert K.—*Manganese Ores of the Bukowina, Austria.* [A concise but complete description of the country, the ores, geology, methods of handling and preparing and costs of the same].—Iron & Steel Inst. Adv. Copy 5; pp 20*; 50c. I. & C. Tr. Rev. Sept. 22 1916; p 342; pp 2¼*; 35c. E. & M. J. Nov. 25 1916; p 935; pp 3; 25c.

Simpson, F. L. G.—*A Description of the Methods of Working Out the Pillars at the Mohpani Mines, India, by means of Packing and a Comparison of the Dry and Wet Systems of Packing.* [Seven methods are herein described].—Trans. Mg. & Geol. Inst. of India Oct. 1916; p 29; pp 20*; $1.

Singewald, Joseph T., Jr.; Miller, Benjamin.—*High-Grade Manganese Ores of Brazil.* [Excerpts from an article in Iron Age. A general description of the several deposits, mining and transportation costs and production are given].—Pan-American Union Bull. Nov. 1916; p 601; pp 5½*; 35c.

Staley, Homer F.; Beecher, Milton F.—*Practical Handling of Iowa Clays with Application of Ceramic Principles.* [Methods of prospecting and testing the clay bodies are given, as well as descriptions of methods of manufacturing and properties of the burned product].—Iowa State College Bull. 43 pp 48*.

Tallant, J. D.—*Pillar Caving at the Braden Mines, Chile.* [A general description of the system and costs of operating].—Teniente Topics July 1916; p 13; pp 3*; 35c.

Tillson, B. F.—*Hammer Drill Records at the Franklin Mines, New Jersey.* [Abst. of a paper read before the A. I. M. E. Considers drifting, raising and stoping separately and gives costs for each].—Engg. & Cont. Aug. 16 1916; p 163; pp 1¼; 20c. Comp. Air Sept. 1916; p 8123; pp 2½; 20c.

Wagner, William.—*Coeur d'Alene Mining Information.* [Financial statements of the larger companies are given and production and value thereof for the smaller ones. Brief separate accounts of each company in the district are also given].—Wagner, Wallace, Ida.; book; pp 174; $4.

Williams, R. Y.—*Mine Ventilation Stoppings.* [Costs of construction and maintaining are given, with methods of constructing the stoppings, with special reference to Illinois fields].—U. S. Bur. of Mines Bull. 99; pp 30*; 20c.

Wilson, Alfred W. G.—*Report on the Production of Spelter in Canada in* 1916. [Considerable miscellaneous information relative to zinc mining and smelting is given, besides production of the metal. Labor, mining and smelting costs are also given in some detail].—Canada Dept. of Mines, Mines Branch Report 428; pp 60.

Wilson, Philip D.—*Comparison of Stoping Methods at Calumet & Arizona Mine.* [Abst. from the bulletin of the A. I. M. E. Description of methods used and comparisons of costs and advantages].—M. & S. P. Aug. 26 1916; p 315; pp 3½*; 20c.

Wilson, P. D.—*Stoping in the Calumet & Arizona Mines, Bisbee, Arizona.* [Gives detail of procedure for systems used as square-setting, top-slicing, caving systems, etc.].—Bull. A. I. M. E. July 1916; p 1099; pp 19*; 35c.

——— *Accounting and Engineering Show Results.* [Argues that the accounting, executive and engineering departments should work in harmony].—Coal Age July 15 1916; p 104; pp 2¼; 20c.

——— *Argentine Oil Industry Reconstituted.* [On laws, costs of operation, etc.].—Petro. World Oct. 1916; p 479; pp 1¼; 35c.

——— *Britannia Mining and Smelting Co., Ltd., Howe Sound, B. C.* [Reprint of a company balance sheet and report closed Jan. 1 1916].—Canadian Mg. Jnl. July 1 1916; p 323; pp 3¼; 35c.

——— *Canadian Mining Corporation.* [Cost and other details of operation].—E. & M. J. Aug. 19 1916; p 348; pp 1¼; 25c.

——— *Concreting the Sacramento Shaft, Bisbee, Arizona.* [Details of the construction, methods of doing the work and costs for materials and labor on the same are given].—M. & S. P. Oct. 7 1916; p 521; pp 8½*; 20c.

——— *Consolidation of the Treadwell Mines, Alaska.* [Operating costs, production, description of the company's holdings, etc., and items of financial interest are given].—M. & S. P. Aug. 26 1916; p 307; pp 7*; 20c.

——— *Cost and Extraction in the Selection of a Mining Method.* [Discussion of a previously read paper].—A. I. M. E. Bull. Dec. 1916; p 2180; pp 1½; 35c.

——— *Costs of Operating Electric Cap Lamps.*—Coal Age July 1 1916; p 17; pp ¾; 20c.

——— *Gold Mining in War Time.* [A review of the conditions, prices and taxes in West Australia].—Monthly Jnl. Chamber of Mines West Aust. June 30 1916; p 108; pp 4½; 35c.

——— *Iowa State Mine Inspectors' Report for the Biennial Period Ending Dec.* 31, 1915. Reviews operations by counties, giving mine production and new equipment installed at mines, with accidents in the district in tabulated form].—State Mg. Bur. Report; pp 112.

——— *Method and General Cost of Rock Excavation for the Inlet Swamp Drainage District, Illinois.*—Engg. & Cont. Nov. 15 1916; p 429; pp ¾; 25c.

——— *Placer Mining in Yukon, Methods and Costs of.* [Extract of a report published by the Minister of Interior, Ottawa, Ont.].—Canadian Mg. Jnl. Nov. 1 1916; p 506; pp 3¾; 35c.

——— *Transvaal Chamber of Mines August Analysis of Gold Production.* [Tonnage, yield, working costs, profits, dividends, etc., are given separately in tabulated form for each company].—Transvaal Chamber of Mines Aug. Report; pp 6.

MINING MISCELLANY

Ball, Sydney H.—*The Lead Mines of Washington County, Missouri.* [A brief description of the geology of the deposits and operations and methods of working the deposits].—M. & S. P. Dec. 2 1916; p 807; pp 3¼*; 20c.

Bristol, J. J.—*Reduction of Stope Contours.* [The apparatus described accomplishes the result in one operation and is a plain pantograph for reduction, with a cosine pantograph attached thereto].—E. & M. J. Dec. 16 1916; p 1053; pp 4*; 25c.

Campbell, F. W.—*Working Over an Old Mine.* [A system being used by the Nay Aug Coal Co., Dunmore, Pa., by which it is mining ground mined and partially robbed already].—Coal Age Dec. 2 1916; p 924; pp 1¾*; 20c.

Crankshaw, H. M.—*Modern Methods of Mining and Ventilating Thick Pitching Beds.* [Confined to coal deposits. Details and drawings of the methods are shown].—Bull. A. I. M. E. July 1916; p 1159; pp 11*; 35c.

Davies, R. S.—*Hydraulic Packing at Ballarpur Colliery, Central Provinces.* [From the transactions of the Mg. and Geol. Inst. of India].—Coll'y Guard. Nov. 3 1916; p 856; pp 1*; 35c.

Dewell, Henry D.—*Timber Framing.* [Various methods of splicing and descriptions of different types of timber trusses are given].—West. Engg. Dec. 1916; p 455; pp 7*; 25c.

Dickerman, Nelson.—*Buying Supplies for a Mine.*—M. & S. P. Sept. 2 1916; p 350; pp 2½; 20c.

Eaton, S. Ford.—*Driving a 1200-Ft. Raise.* [A 10 by 20-ft. raise advancing at from 68 to 128 ft. per month. Methods employed and reasons for using the same are given].—E. & M. J. Sept. 9 1916; p 461; pp 3¾*; 25c.

Finlay, James R.—*The Problem of Efficiency.* [An address before the Colorado School of Mines].—M. & S. P. Aug. 12 1916; p 231; pp 3; 20c.

Guignon, F. A.—*The Valuation of Bedded Mineral Land.* [Formulas for figuring the value when the mineral is being used, where it is not being used, where mineral is used and land has surface value and where mineral is not being used, but surface has value].—E. & M. J. Dec. 2 1916; p 969; pp 2½; 25c.

Hidgkinson, H. H.—*Mining Ore from Pillars.* [A method used by the New Jersey Zinc Co. It is a combination where top-slicing is begun at the bottom of the body and raised from level to level by shrinkage stoping].—E. & M. J. July 29 1916; p 217; pp 2½*; 25c.

Hoffman, F. L.—*Mining Hazards on the Pacific Coast.* [States that the fatality rate here is excessively high].—Mg. Cong. Jnl. Oct. 1916; p 172; pp 11; 35c.

Jackman, A. N.—*Russian Mines.* [A handbook of mining concessions worked by British interests in Siberia].—Financial Times, London; book; 50c.

Jorgensen, F. F.—*Air Pressure Mine Sprinkling Car.* [Drawings are shown with a description of its construction and operation].—Comp. Air Nov. 1916; p 8179; pp 1½*; 20c.

Jorgensen, F. F.—*Sprinkling Car for Mine Use.* [This tank car is designed so that the spray may be thrown in any direction].—Coal Age Oct. 7 1916; p 584; pp 1*; 20c.

Latimer, J. W.—*The Roofing of Mine Buildings.* [Abst. of a paper read before the West Virginia Coal Mining Inst.].—Coal Age Aug. 5 1916; p 226; pp 1½; 20c.

Manning, Van H.—*What Can Uniform Mining Laws Hope to Accomplish.* [A paper read before the American Mg. Cong., Chicago].—E. & M. J. Dec. 2 1916; p 973; pp 3¾; 25c. M. & S. P. Dec. 2 1916; p 796; pp 5; 20c.

Miller, Benjamin L.; Singewald, Joseph T., Jr.—*Conditions Governing Mining in South America.* [From Teniente Topics in which a general review of operations in South American countries is given and conditions controlling the same are brought out].—Mg. World Sept. 23 1916; p 541; pp 1½; 10c.

Murray, R. M.—*Mining Methods at Mount Lyell, Australia.* [Abst. of a paper read before the Aust. I. of M. E., describing the method of stoping the large body].—E. & M. J. Sept. 2 1916; p 416; pp 3¼*; 25c.

Reifsneider, L. B.—*Underground Mining in Cuba.* [A method which does not interfere with operations above in surface mining. The stopes are filled after being worked out].—E. & M. J. Sept. 16 1916; p 509; pp 2¾*; 25c.

Robertson, J. A. T.—*An Engineer's Travels in Western China.* [A geographic review of the province of Sze-chuan, China, as related to the mining industries of the province, which are in their primitive stages still].—Mg. Mag. Nov. 1916; p 267; pp 13*; 50c.

Scott, David B.—*Stoping Methods of the Miami Copper Co., Arizona.* On the methods of haulage and stoping used in extracting this large body. Several stoping methods are being used].—Bull. A. I. M. E. June 1916; p 1031; pp 17*; 35c.

Scott, Herbert K.—*Manganese Ores of Bulkowina.* [A paper read before the Iron and Steel Inst., London. Geology of the deposits, methods of mining, mining costs and selling prices and grades of the ore are among items considered].—E. & M. J. Nov. 25 1916; p 935; pp 3; 25c.

Simpson, F. L. G.—*A Description of the Methods of Working Out the Pillars at the Mohpani Mines, India, by Means of Packing and a Comparison of the Dry and Wet Systems of Packing.* [Seven methods are herein described].—Trans. Mg. & Geol. Inst. of India Oct. 1916; p 29; pp 20*; $1.

Tally, Robert E.—*Mine-Fire Methods Employed by the United Verde Copper Co., Arizona.* [Causes, methods of prevention, ventilation and methods of handling a stope on fire are considered].—Bull. A. I. M. E. Sept. 1916; p 1545; pp 9*; 35c.

Weimbren, M.—*Method of Removing Broken Ore from Flat Stopes.* [Abst. from the Jnl. of the Chem. Met. & Mg. Soc. of South Africa].—Mg. World Aug. 26 1916; p 362; pp ¾*; 10c.

Wilson, P. D.—*Stoping in the Calumet & Arizona Mines, Bisbee, Arizona.* [Gives detail of procedure for systems used as square-setting, top-slicing, caving systems, etc.].—Bull. A. I. M. E. July 1916; p 1099; pp 19*; 35c. M. & S. P. Aug. 26 1916; p 315; pp 3½*; 20c.

Young, G. J.—*Nomenclature of Mining Methods.* [The names commonly used for different mining methods are classified and a description is given of the systems named by terms of common usage].—E. & M. J. July 22 1916; p 175; pp 3¾; 25c.

——— *Conversion Table for the Valuation of Ores, Minerals and Metals.* [A table for converting various English money values into the corresponding U. S. currency value].—Mg. Mag. Sept. 1916; p 152; pp 4; 50c.

——— *Cost and Extraction in the Selection of a Mining Method.* [Discussion of a previously read paper].—A. I. M. E. Bull. Dec. 1916; p 2180; pp 1½; 35c.

——— *Economies for Small Mines.*—S. Afr. Engg. Sept. 1916; p 46; pp 1¼; 35c.

——— *Mine Fire Methods Employed by the United Verde Copper Co.* [Discussion of a paper by R. E. Tally, telling considerable of methods used in the mines of the Anaconda Copper Co.].—A. I. M. E. Bull. Dec. 1916; p 2173; pp 7½; 35c.

——— *When Machines are Soldiering.* [Treats on the care and use of machinery].—Coal Age Sept. 2 1916; p 386; pp 1¾; 20c.

MINES AND MINING (b.*)

CHAPTER XIV

TRANSPORT AND HAULAGE

Transport

Brown, J. F. Kellock.—*Damascus Steel from Mount Lebanon Iron Ore.* [The geology, transportation and nature of the ores in these remote and ancient mines of Palestine are briefly described].—E. & M. J. Dec. 23 1916; p 1085; pp 1¼*; 25c.

Burch, H. K.—*The Inspiration Mine Plant.* [Abst. from a paper read before the A. I. M. E. Describes the equipment and methods used for handling the ore from the mine, both underground and on surface].—E. & M. J. Sept. 23 1916; p 537; pp 5¾*; 25c.

Capron, W. C.; Kuzell, C. R.—*Metallurgical Works Tramways.* [Reviews and discusses the use of different types of locomotives used about smelters and in some cases gives cost data on their operation].—E. & M. J. Oct. 7 1916; p 613; pp 8*; 25c.

Clapp, W. H.—*Motor Truck Development and Use in Southern California.* [A very complete table is given showing the cost of operating gasoline motor trucks at various mileages].—Mg. & Oil Bull. Sept. 1916; p 222; pp 6; 25c.

Clapp, W. Howard.—*Economics and Costs of Motor Truck Operation.* [A paper read before the Amer. Soc. of Mech. Eng. The costs of trucks and various details in the cost of their operation is given].—Canadian Eng. Nov. 9 1916; p 383; pp 3¾*; 35c.

Duran, Miguel.—*Estudio del Plan de Ferrocarriles Mineros de Austrias.* [A study of the railroads applied to mining in Austria].—Revista Minera June 16 1916; p 293; pp 2; 35c.

Eddy, L. H.—*Sonoma Magnesite Mines, California.* [Describes the development, transportation and calcining of the ores for shipment].—E. & M. J. July 29 1916; p 225; pp 2*; 25c.

Gillette, Halbert Powers.—*Handbook of Rock Excavation Methods and Costs.* [Details regarding the different methods used in rock excavation, as drilling, explosives, etc.].—Clark Book Co.; book; pp 835*; $5.

Green, Raoul.—*Actual Costs of Mine Haulage by Horses and by Compressed Air.* [A paper read before the Canadian Mg. Inst., giving actual costs under varying conditions].—Mg. World Oct. 7 1916; p 625; pp 1¼; 10c.

McBride, Wilbert G.—*Motor Truck Operation at Mammoth Collins Mine, Schultz, Arizona.* [Abst. from the proceedings of the A. I. M. E., reviewing costs and what can be done with a motor truck].—Mg. World July 22 1916; p 145; pp 1¾; 10c. M. & S. P. July 8 1918; p 45; pp 2; 20c. Engg. & Contr. Aug. 16 1916; p 160; pp 1½; 20c.

McGregor, A. G.—*Features of the New Copper Smelting Plants in Arizona.* [Treats on the transportation and sampling of the ores as well as actual furnace practice].—Bull. A. I. M. E. Aug. 1916; p 1257*; 35c.

Murphy, S. J.—*A Submarine Pipe Line Across the Atlantic.* [A scheme for the under-sea transportation of oil and similar liquids].—Petro. World Nov. 1916; p 530; pp 2½*; 35c.

Potter, A. A.; Buck, W. A.—*Internal Combustion Engines as Applied to Tractors.* [A paper read before the A. S. M. E.].—Pract. Eng. Dec. 15 1916; p 1031; pp 1½; 20c.

Rickard, T. A.—*The Britannia Mine and Mill, British Columbia.* [Details on the mill equipment and operation, with further information on the mine workings and deposits].—M. & S. P. Nov. 11 1916; p 693; pp 8*; 20c.

Robertson, A.; Johnston, A. M.—*Belt Conveyors.* [On the life and proper loading of belts].—S. Afr. Engg. June 1916; p 107; pp 2⅓*; 35c.

Robins, Hallet R.—*Flotation at the Calaveras Copper—A Simple Flow-Sheet.* [Costs, transportation and the ore body are described, besides the flotation system. No table concentration is employed at all].—M. & S. P. Nov. 25 1916; p 769; pp 5*; 20c.

Roche, Thomas F.—*Mining and Smelting at Casapalca, Peru.* [From the West Coast Leader, describing the district and operations in general].—Mg. World Sept. 2 1916; p 409; pp 1¼; 10c.

Rogers, A. P.—*West Coast Travel Observations.* [A general talk on transportation, customs of the people and general conditions to be found in Peru, Bolivia and Chile].—E. & M. J. Dec. 23 1916; p 1093; pp 3; 25c.

*(b) Includes Transport and Haulage, Storage, Accidents, Sanitation, Safety, Rescue and First Aid, Labor, Management, Sociological, Accounts, Bookkeeping.

Schiefer, H. V.—*An Automatic Tipple Near Moutzdale, Pa.* [Two men handle the tipple with a capacity of 2500 tons per day, and they handle 8 cars per minute. Line drawings and description of the tipple are given].—Coal Age Dec. 23 1916; p 1040; pp 4*; 20c.

Singewald, Joseph T., Jr.; Miller, Benjamin.—*High-Grade Manganese Ores of Brazil.* [Excerpts from an article in Iron Age. A general description of the several deposits, mining and transportation costs and production are given].—Pan-American Union Bull. Nov. 1916; p 601; pp 5½*; 35c.

Smith, George Otis; Lesher, C. E.—*Expert's View on Cost of Coal.* [Met. & Chem. Engg. Dec. 1 1916; p 631; pp 4¼; 35c. A paper read before the American Mg. Cong. advocating that costs should be more accurately kept and speaking of government operation of the mines].—C. Tr. Bull. Dec. 1 1916; p 25; pp 4; 25c.

Trautschold, R. —*The Economics of Material Handling in Manufacturing Plants.* [Treats more directly with cranes and other plants and equipment for loading boats and cars].—Engg. Mag. July 1916; p 528; pp 9*; 35c.

Tucker, W. B.—*Mines and Mineral Resources of Amador, Calaveras, Tuolumne.* [Economic mineral products are reviewed by separate descriptions of deposits and mines, with some information on the condition of the country].—Calif. Mg. Bur.; pp 180*.

Warden-Stevens, F. J.—*Coal and Bunkering Ports of Canada.* [Speaks of the extent of operations of bunkers in the Dominion].—I. & C. Tr. Rev. Sept. 8 1916; p 449; pp 3*; 35c.

Warden-Stevens, F. J.—*Coal and Shipping.* [A description and line drawings of the plant for coaling vessels at the Panama canal].—Coll'y Guard. Nov. 10 1916; p 899; pp 2⅛*; 35c.

Warden-Stevens, F. J.—*Coal Handling Equipment on the Great Lakes.* [Describes several loading docks].—Coll'y Guard. June 16 1916; p 1133; pp 2*; 35c.

Warden-Stevens, F. J.—*Coal Shipping from South Africa.* [Describes several shipping appliances and arrangements].—Coll'y Guard. June 30 1916; p 1229; pp 2⅛*; 35c.

Warden Stevens, F. J.—*Coaling at the Panama Canal.* [Describes coaling docks and methods of operation there].—Coll'y Guard. Oct. 20 1916; p 745; pp 3*; 35c.

——— *Antimony Ore in Southern Rhodesia.* [Types of occurrences and methods for calculating shipments and cost of the same are explained].—S. Afr. Mg. Jnl. Aug. 19 1916; p 465; pp 1; 35c.

——— *Coal Handling on the Norfolk & Western Railway.* [A brief description of the coal handling facilities and methods used by this road].—Coal Age Sept. 23 1916; p 498; pp 1½; 20c.

——— *Mechanical Coal Stage at Dairycoates, England.* [Drawings and description of the structure are given].—Coll'y Guard. Sept. 22 1916; p 546; pp 1⅛*; 35c.

——— *Pipe-Line Transportation of Petroleum.* [Full financial, cost, construction and operation accounts of various pipe lines in U. S. are given].—U. S. Federal Trade Commission Report; pp 467*.

——— *Quarrying and Shipping Iron Ore.* [A description of the Broken Hill Proprietary Co.'s mines, Australia].—Mg. & Engg. Rev. Sept. 5 1916; p 308; pp 7*; 35c.

——— *Rapid Gain in Coal Movements Over Heaviest Railroads.* [Abst. from a U. S. Dept. of Commerce report].—Coal Tr. Rev. Aug. 15 1916; p 44; pp 2; 25c.

——— *Tractors Hauling Ore in Salt Lake Valley, Utah.*—Mg. World Dec. 16 1916; p 1033; pp 11*; 10c.

Haulage and Conveying

Baker, H. W.—*Aerial Tramway Locked by Windstorm.* [An account of the tramway construction and the accident which occurred to it during a windstorm]. E. & M. J. July 8 1916; p 91; pp 1½*; 25c.

Blackstone, Richard.—*A History of the Homestake Mine, S. D.* [Abst. from Pahasapa Quarterly. Reviews the progress of the company, mill and mines].—Mg. World July 15 1916; p 99; pp 3¼*; 10c.

Brennan, Thomas.—*Good Results Obtained in the Pittsburgh Seam.* [A system of room and pillar mining in western Pennsylvania. Points on track laying and mining costs are also given].—Coal Age Dec. 23 1916; p 1038; pp 2; 20c.

Buck, A. M.—*Some Graphical Solutions of Electric Railway Problems.* [Formulas, description and curves on various problems].—Univ. of Ill. Bull. July 24 1916; pp 36*.

Burch, Kenyon.—*Mine and Mill Plant of the Inspiration Consolidated Copper Co., Arizona.* [A complete description of plant equipment and operations from underground pockets to the finished concentrate].—Bull. A. I. M. E. Sept. 1916; p 1467; pp 33*; 35c.

Campbell, C. M.—*The Granby Mine Car.*—E. & M. J. Dec. 16 1916; p 1058; pp ¾*; 25c.

Clapp, W. B.—*Motor Truck Development.* [Abstract of a paper read before the A. I. of Mech. Eng. A table showing operating costs for trucks making various mileages per day is given].—Mg. Jnl. Nov. 4 1916; p 735; pp 1¼; 35c.

Clark, Walter C.—*Electricity at the Bunker Hill & Sullivan Mines, Idaho.* [On the equipment and use of electricity in the mills, rock house, for pumping, hoisting, haulage and signaling].—Jnl. Elect. Power & Gas Dec. 23 1916; p 483; pp 3¼*; 35c.

Crankshaw, H. M.—*Mining Methods Employed in the Anthracite Field.* [A description of the stratigraphy and details of methods of underground operation and mining].—Coal Age Sept. 1916; p 452; pp 4*; 20c.

DeWolfe, E. C.—*A Modern Coal Mining ing Organization in Illinois.* [From Electrical Mining. The equipment, operation and methods of managing at the Madison Coal Corporation's mines are reviewed].—C. Tr. Bull. Aug. 1 1916; p 43; pp 8*; 25c.

Gates, A. O.—*Belt-and-Bucket Elevators.* [Details for designing and formulas for use in the same are discussed].—E. & M. J. July 1 1916; p 40; pp 5½*; 25c.

Gawthrop, L. B.—*Scientific Headlighting.* [On headlights for haulage motors].—Coal Age Sept. 2 1916; p 382; pp 1¼; 20c.

Geismer, H. S.—*Revolving Dumps at Coal Mines.* [On the use and description of various installations of this type].—Coal Age Aug. 5 1916; p 224; pp 1½*; 20c.

Green, R.—*Horse Haulage vs. Compressed Air Haulage at Collieries.* [In discussing the subject a comparison of actual costs is made].—Canadian Mg. Inst. Bull. Aug. 1916; p 711; pp 6; 35c. Comp. Air Sept. 1916; p 8116; pp 2; 20c.

Heidelberg, Fred M.—*Efficiency with New Mine Cars.* [Describes a new 4-compartment tool car, water tank car, latrine car and storage-battery and blower car, which are being used at the Copper Queen mine, Arizona].—E. & M. J. Nov. 18 1916; p 904; pp 1¾*; 25c.

Hellmund, R. E.—*Rating of Mine Locomotives.*—Coal Age Aug. 26 1916; p 337; pp 2; 20c.

Hood, O. P.—*Safety in Hoisting and Slope Haulage.* [Published by permission of the U. S. Bureau of Mines. A talk and discussion on preventives and accidents which have occurred].—Mg. World Nov. 11 1916; p 823; pp 1¼; 10c.

Husband, R. H.—*Practical Notes on the Various Systems of Underground Haulage Applicable to Indian Mines.*—Trans. Mg. & Geol. Inst. of India Sept. 1916; p 63; pp 14; $1.25.

Johnston, A. M.—*Testing of Conveyor Belts.* [Abst. from a paper read before the South African Inst. of Eng.].—Met. & Chem. Engg. Sept. 1 1916; p 262; pp 2½*; 35c.

Machin, W. A.—*The Jigging Conveyor Underground and Methods of Working.* [A paper read before the National Assn. of Colliery Mgrs., England. Several types are described and drawings shown].—I. & C. Tr. Rev. Nov. 3 1916; p 539; pp 4*; 35c.

Rickard, T. A.—*The Britannia Mine and Mill, British Columbia.* [Details on the mill equipment and operation, with further information on the mine workings and deposits].—M. & S. P. Nov. 11 1916; p 693; pp 8*; 20c.

Robertson, A.; Johnston, A. M.—*The Use of Belt Conveyors.* [Abst. of a paper read before the S. Afr. Inst. of Eng. Reviews qualities of different kinds and gives the results of tests made on some].—E. & M. J. July 1 1916; p 9; pp 7¾*; 25c.

Scott, David B.—*Stoping Methods of the Miami Copper Co., Arizona.* [On the methods of haulage and stoping used in extracting this large body. Several stoping methods are being used].—Bull. A. I. M. E. June 1916; p 1031; pp 17*; 35c.

Scott, W. A.—*Commonwealth Mine and Mill, Pearce, Arizona.* [Gives details on operations and description of methods used].—Mg. World July 29 1916; p 187;

Scott, W. A.—*Concentrating Mill Tailings Near Park City, Utah.* [Concentration and haulage are dealt with. To get rid of zinc considerable of the lead and silver was lost formerly].—Mg. World Aug. 26 1916; p 359; pp 2½*; 10c.

Scott, W. A.—*Mining Operations in Bingham Camp, Utah.* [Describes operations of the more important properties].—Mg. World Sept. 16 1916; p 491; pp 1¾; 10c.

Scott, W. A.—*The Old Dominion Copper Co.'s Operations, Arizona.* [Haulage, mine water and concentration problems are reviewed].—Mg. World July 8 1916; p 43; pp 2¾*; 10c.

Scott, W. A.—*The Tonopah Extension Mines in Nevada.*—Mg. World Nov. 11 1916; p 831; pp 1; 10c.

Smith, Le Baron.—*A Frogless Switch.* [Taken from Coal Age].—E. & M. J. Dec. 23 1916; p 1098; pp ¾*; 25c.

Trautschold, Reginald.—*The Economics*

of Material Handling in Manufacturing Plants. [Costs, details and curves of use in designing are given of standard practice in belt-conveying].—Engg. Mag. Aug. 1916; p 734; pp 13*; Sept. 1916; p 734; pp 13*; 70c.

Walker, Sydney F.—*Coal-Face Conveyors Employed in the United Kingdom.* [Describes two styles of conveyors of this type for use in handling coal from the face in thin beds].—Coal Age Nov. 4 1916; p 744; pp 5*; Nov. 11 1916; p 790; pp 4¾*; 70c.

Warren, H. M.—*Electrical Distribution and Application in Mines.* [On the fastening and placing of cables underground in coal mines].—Coal Age July 15 1916; p 98; pp 5¼*; 20c.

Warren, H. M.—*Electrical Distribution and Application in Mines.* [Speaks of the use of electricity for pumps, hoists, locomotives, drilling and air compression].—Coal Age July 22 1916; p 138; pp 4*; 20c. pp 1½*; 10c.

Wilson, E. B.—*Slope Haulage in Alabama.* [Describes a slope haulage-way with varying grade over a mile long. It has handled the record coal output of the state].—Coal Age Aug. 5 1916; p 220; pp 2*; 20c.

Wolfe, D.—*Safe Transportation Underground.* [From the Lehigh Employes' Magazine].—Coll'y. Guard. Oct. 13 1916; p 713; pp ½*; 35c.

Young, George J.—*Elements of Mining.* [Each of the departments of mine operations, as drilling, ventilation, etc., is considered briefly and separately, giving some details regarding the same].—McGraw-Hill; book; pp 628*; $5.

Zimmer, G. F.—*The Mechanical Handling and Storage of Materials.* [The correct design of conveyor belts and systems is spoken of, with information on storage bins].—Crosby, Lockwood & Son, London; book; pp 752*; $12.

——— *American Coal Mine Haulage.* [Describes the practice in detail].—Coll'y Guard. July 14 1916; p 61; pp 2½*; 35c.

——— *An Interesting Dynamometer Journal-Friction Test.* [A test to determine the friction in the old type of bearing on mine cars and the newer types of roller bearings].—Coal Age Dec. 16 1916; p 1000; pp 1½*; 20c.

——— *Automatic Drop-Bottom Mine Car.*—Coal Age July 1 1916; p 25; pp 1½*; 20c.

——— *Coal Miners' Pocketbook.* [Gives rules, principle, formulas and tables]. — McGraw-Hill Co.; book; pp 1172*; $4.

——— *Quarrying and Shipping Iron Ore.* [A description of the Broken Hill Proprietary Co.'s mines, Australia].—Mg. & Engg. Rev. Sept. 5 1916; p 308; pp 7*; 35c.

——— *Snake Creek Tunnel, Utah.* [A *concrete tunnel.* [The construction and methods used in driving it are described].—M. & S. P. Aug. 5 1916; p 205; pp 2*; 20c.

——— *The Plant of the Dolomite Products Co., Narlo, Ohio.* [The plant description includes excavating in the open-pit, on surface and haulage of the broken materials].—Excavating Eng. July 1916; p 371; pp 4*; 20c.

——— *The Mount Morgan Mine and Works, Australia.* [Complete description of the geology, mining and concentrating plant of this mine, once a gold mine but now copper].—Mg. & Engg. Rev. July 5 1916; p 244; pp 9*; 35c.

STORAGE

Burch, Kenyon.—*Mine and Mill Plant of the Inspiration Consolidated Copper Co., Arizona.* [A complete description of plant equipment and operations from underground pockets to the finished concentrate].—Bull. A. I. M. E. Sept. 1916; p 1467; pp 33*; 35c. E. & M. J. Sept. 23 1916; p 537; pp 5¾*; 25c.

Cain, William.—*Earth Pressure, Retaining Walls and Bins.* [A complete text on the earth pressure in designing].—John Wiley & Son; book; pp 279*; $2.50.

Zimmer, G. F.—*The Mechanical Handling and Storage of Materials.* [The correct design of conveyor belts and systems is spoken of, with information on storage bins].—Crosby, Lockwood & Son, London; book; pp 752*; $12.

——— *Coal Storage Plant on the Monongahela Innovation for River Operators that Is Arousing Keen Interest.* [A description of the storage plant is given].—Coal Tr. Bull. Sept. 15 1916; p 35; pp 1½; 25c.

——— *Quarrying and Shipping Iron Ore.* [A description of the Broken Hill Proprietary Co.'s mines, Australia].—Mg. & Engg. Rev. Sept. 5 1916; p 308; pp 7*; 35c.

ACCIDENTS

Baker, H. W.—*Aerial Tramway Locked by Windstorm.* [An account of the tramway construction and the accident which occurred to it during a windstorm].—E. & M. J. July 8 1916; p 91; pp 1½*; 25c.

Fay, A. H.—*Coal Mine Fatalities in the United States,* 1870-1914. [Also contains statistics on coal production, labor and mining methods by states and calendar years].—U. S. Bur. of Mines; Bull. 115; pp 366; 50c.

Fay, Albert H.—*Coal Mine Fatalities in the United States, May,* 1916. [The nature, number and location of the accidents are given in tabulated form].—U. S. Bur. of Mines Monthly Statement; pp 28.

Fay, A. H.—*Coal Mine Fatalities in the United States in July* 1916.—U. S. Bur. of Mines; pp 28.

Fay, Albert H.—*Coal-Mine Fatalities in the United States, August, 1916.* [The information is mostly in tabulated form].—U. S. Bur. of Mines Report; pp 28.

Fay, Albert H.—*Monthly Statement of Coal Mine Fatalities in the United States.* [Contains a list of permissible explosives, lamps and motors tested prior to Aug. 31 1916].—Bur. of Mines Statement July 1916; pp 28.

Fay, Albert H.—*Production of Explosives in the United States.* [Also contains notes on coal mine accidents due to explosives and a list of permissible explosives, lamps and motors tested before May 1 1916].—U. S. Bureau of Mines Tech. Paper 159; pp 24; 15c.

Fay, Albert H.—*Accidents at Metallurgical Works in the United States.* [They are given for the greater part in tabulated form and include 1915 only].—U. S. Bur. of Mines Tech. Paper 164; pp 20; 15c.

Geismer, H. S.—*Explosion at the Bessie Mine, Alabama.* [Thirty men are believed to have been killed in the explosion in a mine of the Sloss-Sheffield Steel & Iron Co.].—Coal Age Nov. 18 1916; p 835; pp 2¾*; 20c.

Hagemann, Ing.—*Beitrage zum Bergmännischen Rettungswesen.* [On safety and rescue work of mines and plants in Germany].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 222; pp 93½; $1.50.

Higgins, E.—*Accidents from Misfires and How to Prevent Them.* [Many causes of misfires are taken up, important among which is the making of the primer].—Mg. World July 1 1916; p 17 · pp 1*; 10c.

Hoffman, F. L.—*Mining Hazards on the Pacific Coast.* [States that the fatality rate here is excessively high].—Mg. Cong. Jnl. Oct. 1916; p 172; pp 11; 35c.

Powell, J. W.—*The Season of Explosions.* [Treats on the danger of winter as a time when most mine explosions occur].—Coal Age Sept. 16 1916; p 458; pp 2¼; 20c.

Pellegrino, John.—*Quenching a Mine Fire in a Kansas Mine with Chemicals.*—Coal Age Aug. 26 1916; p 303; pp 1¼*; 20c.

Ryan, Edward.—*Biennial Report of the State Inspector of Mines, Nevada,* 1913-1914. [An account of the metal production by counties and separate descriptions of accidents].—Report; pp 52.

Weber, Heinrich.—*Die Schlagwetterexplosion auf dem Steinkohlenbergwerk Minister Achenbach I/II bei Dortmund am* 30, *Januar* 1914. [A heavy explosion at the Minister Achenbach I/II mine near Dortmund, Germany].—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 528; pp 15*; $1.50.

——— *"Air Blasts" in Mines* [Treats on these occurrences in foreign countries, principal among which is India].—Comp. Air Sept. 1916; p 8108; pp 2; 20c.

——— *Annual Report of Mine Inspector for Marquette County, Mich.* [Describes the accidents separately and classifies them in tabulated form].—Annual Report Sept. 30 1916; pp 18.

——— *Coöperative Effort in Mining.* [Discussion by several of a paper by Joseph P. Hodgson].—A. I. M. E. Bull. Dec. 1916; p 2168; pp 4; 35c.

——— *Iowa State Mine Inspectors' Report for the Biennial Period Ending Dec* 31, 1915. [Reviews operations by counties, giving mine production and new equipment installed at mines, with accidents in the district in tabulated form].—State Mg. Bur. Report; pp 112.

——— *Mines Inspector's Reports for* 1915. [A report of accidents, operations and labor conditions at mines in Great Britain, being confined mostly to coal].—I. & C. Tr. Rev. Oct. 20 1916; p 483; pp 3; 35c.

——— *Mitteilungen über einige der bemerkenswertesten Explosionen beim preussischen Steinkohlenbergbau im Jahre* 1913. [A review of explosions in the anthracite mines of Prussia.—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 339; pp 4*; $1.50.

——— *Mysore State Report of the Chief Inspector of Mines for* 1914.—Mysore Dept. of Mines and Geol.; pp 51; $1.25.

——— *Queensland Mines Inspection.* [Labor, wages, accidents, ventilation, etc.].—Queen. Gov't Mg. Jnl. July 15 1916; p 329; pp 3; 35c.

——— *Unfälle in elektrischen Betrieben auf den Bergwerken Preussens im Jahre* 1913. [Accidents in electrical work in the mines of Prussia in 1913].—Zts.

Berg, Hütten & Salinenw. Band 62, 1914; p 343; pp 241½*; $1.50.

SAFETY

Best, W.—*Ancient and Modern Construction of Miners' Safety Lamps.* [A paper read to the National Assn. of Coll'y Mng.].—I. & C. Tr. Rev. Nov. 24 1916; p 637; pp 1; 35c.

Bissett, W. J.—*Need of Safer Miners and Safer Mines.* [A paper read before the W. Va. Mg. Inst.].—C. Tr. Bull. Oct. 16 1916; p 53; pp 1½; 25c.

Burr, K. M.—*Safety in Coke Oven Operations.* [A paper read before the National Safety Council advocating the selection of workmen as a means for reducing accidents].—Coal Age Oct. 28 1916; p 709; pp 2*; 20c.

Hagemann, Ing.—*Beitrage zum Bergmännischen Rettungswesen.* [On safety and rescue work of mines and plants in Germany].—Zts. Berg., Hütten & Salinenw. Vol. 62 Ser. 3; p 222; pp 93½; $1.50.

Higgins, W. C.—*List of Sketches of Safety Devices.*—Mg. World July 8 1916; p 46; pp 1; 10c.

Hood, O. P.—*Safety in Hoisting and Slope Haulage.* [Published by permission of the U. S. Bureau of Mines. A talk and discussion on preventives and accidents which have occurred].—Mg. World Nov. 11 1916; p 823; pp 1¼; 10c.

Koch, Richard.—*The Electric Safety Lamp.* [Figures on the cost of upkeep of these lamps].—Coal Age Oct. 7 1916; p 582; pp 1¾*; 20c.

Lloyd, John.—*Safety and Efficiency in Coal Mining.* [A general discussion of measures taken along this line].—Coal Age Aug. 26 1916; p 332; pp 3*; 20c.

Manning, Van H.—*Hazards to Men Increase as Mines Become Larger and Employ More Men.* [A paper read before the meeting of operators and inspectors at Harrisburg, Pa.].—Coal Tr. Bull. July 1 1916; p 43; pp 4; 25c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c. E. & M. J. Aug. 26 1916; p 371; pp 6*; 25c.

Scott, Harry E.—*Safety for Hoisting Engineers.* [Practical experiences in the field].—E. & M. J. Oct. 21 1916; p 745; pp 1; 25c.

Weigel, W. M.—*The Illuminating Power of Safety Lamps.*—Bull. A. I. M. E. Aug. 1916; p 1349; pp 11*; 35c.

Willcox, Fred H.—*Safe Practice at Blast Furnaces.* [Shows safe and unsafe way of doing things and has notes on some first aid].—U. S. Bur. of Mines Tech. Paper 136; pp 73*; 30c.

Wheeler, R. V.; Thornton, W. M.—*Electric Signaling with Bare Wires.* [Report on the danger of ignition of inflammable gaseous mixtures by the break-flash of the signal wires].—His Majesty's Stationery Office, London; 35c.

Wolfe, D.—*Safe Transportation Underground.* [From the Lehigh Employes' Magazine].—Coll'y. Guard. Oct 13 1916; p 713; pp ½*; 35c.

——— *Cap Lamp with New Feature.* [An electric lamp with a straight filament passing horizontally across the reflector].—Coal Age Dec. 2 1916; p 918; pp 1¼*; 20c.

——— *Coöperative Effort in Mining.* [Discussion by several of a paper by Joseph P. Hodgson].—A. I. M. E. Bull. Dec. 1916; p 2168; pp 4; 35c.

——— *Illumination.* [A general review of proper illumination with respect to safety on surface].—Anode Sept. 1916; p 1; pp 2; 20c.

——— *Jos. A. Holmes Safety Association, Who's Who in.*—Mg. World Nov. 4 1916; p 795; pp 2¾*; 10c.

——— *New Approved Safety Lamps.* [Brief descriptions of several styles].—I. & C. Tr. Rev. July 14 1916; p 38; pp 1*. Coll'y Guard. July 14; p 64; pp 1*; 35c.

RESCUE AND FIRST-AID

Boardman, J. L.—*First Aid for Broken Bones.* [Reviews the nature of fractures and first aid methods for treating the same].—Anode Sept. 1916; p 8; pp 2*; 20c.

Brett, A. J.—*First Aid on Rand Mines.* [A paper read before the C. M. and M. Soc. of S. Afr.].—S. Afr. Mg. Jnl. July 1 1916; p 314; pp 2; 35c.

Brett, A. J.—*The Encouragement of First Aid Work on the Mines: Some Suggestions Based on Experience at the Crown Mines, South Africa.*—Jnl. Chem. Met. & Mg. Soc. S. Afr. June 1916; p 249; pp 6½; 85c.

Coldham, J. C.—*The Organization and Equipment of a Mine Rescue Station.* [A review of equipment and its use and methods for training a first aid crew. Some information is given on the operation of first aid crews in various mines].—Proc. Aus. Inst. M. E. No. 21 1916; p

9; pp 27*; 65c. S. Afr. Engg. Sept. 1916; p 47; pp 1; 35c.

Jeremiah, Thomas.—*The Actual Worth of Oxygen Breathing Apparatus.* [On the use and what can be obtained with the oxygen helmets].—Coal Age Oct. 7 1916; p 577; pp 1½; 20c.

Paul, James W.; Wolflin, H. M.—*Rescue and Recovery Operations in Mines After Fires and Explosions.* [Detailed text on the subject for both metal and coal mines].—U. S. Bur. of Mines; pp 109; 35c.

Pettibone, C. E.—*Testing Mine Rescue Apparatus.* [Abstract of a paper read before the National Safety Council. Advocates testing breathing apparatus with 5 ozs. internal pressure].—Coal Age Nov. 25 1916; p 875; pp 2½*; 20c; E. & M. J. Dec. 2 1916; p 985; pp 2½*; 25c.

Steidle, E.—*Oxygen Mine-Rescue Apparatus.* [A paper read before the International Assn. of Fire Engineers].—E. & M. J. Oct. 28 1916; p 797; pp 2¼; 25c.

Sterling, J. T.—*Mine Rescue Work Developed in Alberta.* [Abst. from a paper read before the Canadian Mg. Inst., being a general description of the advances made along that line in the province].—C. Tr. Bull. Oct. 2 1916; p 34; pp 1¼; 25c. Mg. Inst. Bull. Aug. 1916; p 717; pp 4; 35c.

Willcox, Fred H.—*Safe Practice at Blast Furnaces.* [Shows safe and unsafe way of doing things and has notes on some first aid].—U. S. Bur. of Mines Tech. Paper 136; pp 73*; 30c.

——— *Progress of First-Aid Work in British Columbia.* [Considerable of the information is from a report to the B. C. Dept. of Mines by Dudley Mitchell].—E. & M. J. Nov. 4 1916; p 815; pp 1¼; 25c.

SANITATION

Bain, Foster H.—*Labor Problems in African Mines.* [Treats on the question of working and living conditions, with respect to sanitation].—Mg. Mag. Oct. 1916; p 199; pp 10; Nov. 1916; p 261; pp 6; $1.

Edwards, J. W.—*Industrial Diseases of Iron and Steel Workers in Meddelsborough, England.* [A paper read before the British Medical Assn.].—I. & C. Tr. Rev. Aug. 11 1916; p 153: pp 1; 35c.

Key, A. Cooper.—*Miners' Phthisis Prevention.* [From a report of a committee investigating the disease on the Rand, South Africa].—E. & M. J. Nov. 18 1916; p 898; pp 2; 25c.

Frood, G. E. B.—*South African Mining in* 1915. [Deals entirely with coal mining, production, accidents, timbering, sanitation and stone dusting].—Coll'y Guard. Nov. 10 1916; p 905; pp 1; 35c.

Watkins, J. A.—*Health Conservation in Steel Mills.*—U. S. Bur. of Mines Tech. paper 102; pp 36; 15c.

White, Joseph H.—*Underground Latrines for Mines.* [A general discussion of latrines with respect to sanitation and the spread of diseases. Line drawings and detailed descriptions are then given on the construction of different types of latrines].—U. S. Bur. of Mines Tech. Paper 132; pp 23*; 20c.

——— *General Report of the Miners' Phthisis Prevention Committee.*—Union of S. Afr. Dept. of Mines, Pretoria; 35c.

——— *Prevention of Miners' Pthisis.* [Report of the Miners' Pthisis Prevention Committee in the Union of South Africa].—Sci. & Art of Mg. Dec. 2 1916; p 204; pp 2¼; 35c.

——— *Rand Mine Managers' and Miners' Phthisis.* [Tells of methods adopted and methods suggested for dealing with the disease in the future].—S. Afr. Mg. Jnl. May 20 1916; p 175; pp 2; 35c.

LABOR AND MANAGEMENT

Alderson, M. W.—*Mining Possibilities in Colombia, South America.* [The general conditions to be found in the country and ways of the peoples are dealt with].—Mg. World July 8 1916; p 51; pp 4*; 10c.

Bain, H. Foster.—*Labor Problems in African Mines.* [A discussion of labor, its comparative costs, with mine production, and a general description with respect to their ways and character].—Mg. Mag. Sept. 1916; p 135; pp 8*; Oct. 1916; p 199; pp 10; Nov. 1916; p 261; pp 6; $1.50.

Balcomb, J. C.—*A Remarkable Tunnel Rapidly Driven in Brazil.* [Gives details of operation with drawings. A bonus system and unusual method of blasting are described].—Comp. Air July 1916; p 8040; pp 5*; 20c.

DeWolfe, E. C.—*A Modern Coal Mining Organization in Illinois.* [From Electrical Mining. The equipment, operation and methods of managing at the Madison Coal Corporation's mines are reviewed].—C. Tr. Bull. Aug. 1 1916; p 43; pp 8*; 25c.

Evans, David.—*Nationalization of Coal Mines.* [A discussion of the subject from the point of view that this will be neces-

sary because of the conflicts now starting between labor and capital in Great Britain].—I. & C. Tr. Rev. Sept. 8 1916; p 271; pp 2½; 35c.

Fay, A. H.—*Coal Mine Fatalities in the United States,* 1870-1914. [Also contains statistics on coal production, labor and mining methods by states and calendar years].—U. S. Bur. of Mines; Bull. 115; pp 366; 50c.

Kellor, F. A.—*Making Americans of Foreign-Born Workmen.*—Mg. & Oil Bull. July 1916; p 181; pp 1¾; 25c.

Kemble, William F.—*Standardizing the Characteristics of Men.* [A general talk with some details on methods by which character of employes may be depicted and further kept track of].—Industrial Management Dec. 1916; p 308; pp 16*; 35c.

Key, A. Cooper.—*Miners' Phthisis Prevention.* [From a report of a committee investigating the disease on the Rand, South Africa].—E. & M. J. Nov. 18 1916; p 898; pp 2; 25c.

Lathrop, L. A.—*Coal Trade in Wales During* 1915. [Extract from a report of the U. S. Bur. of Commerce].—Coal Tr. Bull. July 1 1916; p 50; pp 3½; 25c.

Lawrie, W. W.; Smith, G. H.—*Concrete Shaft Equipment at the Bantjes Consolidated Mines, South Africa.* [Details of construction, costs and labor are given].—Jnl. of Chem. Met. & Mg. Soc. of S. Afr. April 1916; p 202; pp 3½*; 85c.

Manning, Van H.—*Hazards to Men Increase as Mines Become Larger and Employ More Men.* [A paper read before the meeting of operators and inspectors at Harrisburg, Pa.].—Coal Tr. Bull. July 1 1916; p 43; pp 4; 25.

Orr, William G. D.—*The Selection of Men.* [A system for keeping records of employes and selecting the right one for the right place].—B. & C. Rec. Sept. 5 1916; p 413; pp 2½; 35c.

Pickup, William.—*Effects of Labor Movements and Legislation on the Economic Position of Coal Mining.* [A paper read before the Manchester Geol. and Mg. Soc., England].—I. & C. Tr. Rev. Nov. 17 1916; p 609; pp 1; 35c.

Ridge, Fred H., Jr.—*Importance of the Human Factor.* [Deals with efficiency from the point of keeping the employee in a good attitude and state of mind towards his employer].—E. & M. J. Sept. 23 1916; p 543; pp 2; 25c.

Varty, A.—*Officials' Reports to the Mine Manager.* [A paper read before the National Assn. of Colliery Eng.].—I. & C. Tr. Rev. Oct. 13 1916; p 448; pp 1½; 35c.

Wilson, Herbert M.—*Workmen's Compensation Insurance and the Coal Mining Industry.* [A general discussion of the subject from an economic viewpoint].—Mg. Cong. Jnl. Oct. 1916; p 156; pp 7; 35c.

——— *Baku Russian Petroleum Co., Russia.*—Petro. World Sept. 1916; p 426; pp 3; 35c.

——— *Coöperative Effort in Mining.* [Discussion by several of a paper by Joseph P. Hodgson].—A. I. M. E. Bull. Dec. 1916; p 2168; pp 4; 35c.

——— *Die Bergwerksindustrie und Bergverwaltung Preussens im Jahre* 1913. [The mining industry of Prussia in 1913. Coal for the greater part is produced here].—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 367; pp 43½; $1.50.

——— *Iowa State Mine Inspectors' Report for the Biennial Period Ending Dec.* 31, 1915. [Reviews operations by counties, giving mine production and new equipment installed at mines, with accidents in the district in tabulated form].—State Mg. Bur. Report; pp 112.

——— *Mines Inspector's Reports for* 1915. [A report of accidents, operations and labor conditions at mines in Great Britain, being confined mostly to coal].—I. & C. Tr. Rev. Oct. 20 1916; p 483; pp 3; 35c.

——— *Queensland Mines Inspection.* [Labor, wages, accidents, ventilation, etc.].—Queen. Gov't Mg. Jnl. July 15 1916; p 329; pp 3; 35c.

——— *Rhodesia Chamber of Mines, Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau].—Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Welsh Miners' Wages, England.* [A general discussion of the same with wages given at various times].—I. & C. Tr. Rev. Sept. 1 1916; p 246; pp 1*; 35c.

SOCIOLOGICAL

Bain, H. Foster.—*Labor Problems in African Mines.* [Interclass struggles, sanitation, schooling, etc., are things being given considerable study].—Mg. Mag. Nov. 1916; p 261; pp 6; 50c.

Jones, W. T.—*Main Island Creek Coal Co.'s Plant at Omar, W. Va.* [Deals with sociological and sanitation features as established by the company].—Coal Age Oct. 21 1916; p 682; pp 2*; 20c.

ACCOUNTS AND BOOKKEEPING

Bowles, Oliver.—*The Technology of Marble Quarrying.* [Takes up methods of operation and accounting, with a study of the mineralogical constituents of the rock which tend to vary its properties and grade].—U. S. Bur. of Mines Bull. 106; pp 174*; 40c.

Huac, A. J.—*Cost Accounting for the Clay Plant.* [A series of articles, including forms, tables and description for a complete cost accounting system].—B. & C. Rec. Aug. 15 1916; p 307; pp 3; Sept. 5 1916; p 417; pp 2¼; Oct. 17 1916; p 709; pp 1½*; Nov. 7 1916; p 806; pp 2*; Nov. 21 1916; p 901; pp 2*; Dec. 5 1916; p 994; pp 3½*; $2.10.

Jennings, Hennen; Janin, Charles.—*The History and Development of Gold Dredging in Montana.* [Mostly on the Ruby district. One chapter is confined to placer mining methods and operating costs].—U. S. Bur. of Mines Bull. 121; pp 63*; 40c.

McHenry, W. E.—*Is Your Cost System Scientific?* [A discussion of the subject and description of systems].—Engg. Mag. Aug. 1916; p 678; pp 9*; 35c.

Thum, E. E.—*Cost Accounting in the Construction and Operation of a Copper Smelter.* [From experience at the Anaconda Copper Co.'s plant].—Met. & Chem. Engg. July 15 1916; p 96; pp 4¾; 30c.

Young, George J.—*Elements of Mining.* [In an elementary way each different operation and department of mining is taken up such as haulage, prospecting, blasting, drilling, etc.].—McGraw-Hill; books; pp 628*; $5.

——— *Accounting and Engineering Show Results.* [Argues that the accounting, executive and engineering departments should work in harmony].—Coal Age July 15 1916; p 104; pp 2¼; 20c.

——— *Cost Records of Drafting and Engineering.* [Forms and descriptions of the same for the distributing and keeping of costs on different jobs].—Engg. & Cont. Nov. 29 1916; p 472; pp 2*; 20c.

MINES AND MINING (c*)

CHAPTER XV.

PRODUCTION

Anrep, Aleph.—*Investigation of the Peat Bogs and Peat Industry of Canada,* 1913-1914. Each bog-area is described separately and grouped by provinces in which they are located. Notes on foreign peat production are given].—Canada Dept. of Mines, Mines Branch Bull. 11; pp 185*.

Ashworth, James.—*The Iron and Steel Industry in British Columbia.* [Reviews mine and furnace production and conditions].—I. & C. Tr. Rev. Aug. 18 1916; p 183; pp 1*; 35c.

Ball, L. C.—*Maxwelton Goldfields.* [Reviews mining operations and production in the district].—Queen. Govt. Mg. Jnl. June 15 1916; p 261; pp 1¾*; 35c.

Ball, Lionel C.—*Mount Cannindah Copper Mine, Australia.* [The history by years, geology, concentrating and smelting methods are taken up in detail with production figures].—Queen. Gov't Mg. Jnl. 1916; p 318; pp 6*; 35c.

Bancroft, Holland.—*The Bolivian Tin Industry.* [A paper read before the Pan-American Sci. Congress. Reviews the market conditions, production and prices, with information on methods of mining, milling and smelting].—M. & S. P. July 22 1916; p 119; pp 7*; 20c.

Bancroft, J. Austen.—*Mining Operations in Quebec During* 1915. [A separate report on the geology of the zinc-lead deposits in Portneuf county is included].—Quebec Dept. of Mines; Report; pp 146*.

Bartels, Bergassessor.—*Russlands Gold, Platin, Bloi, Silber und Zink Industrie im Jahre* 1912. [Russia's gold, platinum, lead, silver and zinc industry in 1912. The review includes the production of the metals in Russia, Greater Russia and Siberia].—Zts. Burg. Hütten & Salinenw. Vol. 62 Ser. 3; p 217; pp 5; $1.50.

Bastin, E. S.—*Graphite in* 1915. [The market conditions and U. S. in general are reviewed and followed by separate reviews of the industry in each state].—Min. Res. of U. S. II:11; pp 13.

Boulton, W. S.—*Geology and Petroleum Resources.* [Abst. from the presidential address to the Geological Section of the British Assn.].—Petro. World Oct. 1916; p 489; pp 2¼; 35c.

Brooks, Alfred H.—*Gold, Silver and Copper in Alaska in* 1915. [Discusses production and conditions in general and in detail by districts].—Min. Res. U. S. I:8; pp 12.

Brooks, Alfred H.—*Mineral Resources of Alaska.* [Descriptions of mines and deposits reviewing their production, geology and geography. The coal mining lease laws are also spoken of].—U. S. G. S. Bull. 642; pp 279*.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Brown, G. Chester.—*Mines and Mineral Resources of Shasta, Siskiyou and Trinity Counties, California.* [Copper and gold are the principal minerals though many others occur in the district].—Calif. Mg. Bur.; pp 192*.

Browne, P. W.—*Mineral Resources of Newfoundland.* [A review of the possibilities in operating the iron ore and copper deposits of the province. The past production of mines is given].—Canadian Mg. Jnl. Sept. 15 1916; p 437; pp 1¾; 35c.

Burchard, Ernest F.—*Cement in* 1915. [Takes up different phases of the market separately and gives curves in some instances, with the production in each case].—Min. Res. of U. S. II:16; pp 24.

Burchard, Ernest F.—*Iron Ore, Pig Iron and Steel in* 1915. [A general review of the industry, with details and a chapter on Lake Superior ores].—Min. Res. of U. S. I:12; pp 54.

Butler, B. S.—*Copper in* 1915. [A prefatory note is given on gold, silver, copper, lead and zinc. This is followed by a detailed general report on copper production by states, by grades and from the mines and smelters of the country].—Min. Res. U. S. I:21; pp 68.

Butler, B. S.; Loughlin, G. F.—*A Reconnaissance of the Cottonwood-American Fork Mining Region, Utah.* [Notes on the history and production are given, with a detailed description of the formation and operations].—U. S. G. S. Bull. 620-I; pp 62*.

*Includes the Production of Metals and Metal Ores, Non-Metals, etc.

Chapin, Theodore; Canfield, George H. —*Mining Developments and Water-Power Investigation in Southeastern Alaska.* [The gold and copper mines are described by districts in which they are located and reviews are made of sources of water power].—U. S. G. S. Bull. 642-B; pp 55*.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine, with respect to their production, activities, profits and costs].—T. & N. O. Commission, Toronto; Report; pp 7*.

Cubillo, Leandro.—*La Industria Siderurgica Espanola.* [On the metallurgical industry of Spain with particular reference to the steel, iron and alloy industries].—Revista Minera Aug. 1 1916; p 365; pp 3; Aug. 28; p 377; pp 3¼; 70c.

Deustua, Ricardo A.—*La Industria del Petroleo en el Peru Durante 1915.* [A paper read before the Pan-American Congress on the petroleum industry in Peru in 1915].—Inf. y Mem. Soc. Ing. Peru June 1916; p 117; pp 34*; 75c.

Diller, J. S.—*Talc and Soapstone in* 1915. Each is taken separately in general for U. S. Both prices and production are given].—Min. Res. of U. S. 11:9; pp 4.

Dolbear, Samuel H.—*Magnesite Production and Markets.*—M. & S. P. Aug. 12 1916; p 234; pp 2*; 20c.

Dominian, Leon.—*Fuel in Turkey.* [Coal and petroleum are reviewed separately by the places in which they occur. The production, location and nature of the deposits are given].—Bull. A. I. M. E. June 1916; p 1011; pp 20*; 35c.

Dunlop, J. P.—*Secondary Metals in* 1915. [On the production of metals refined from scrap].—Min. Res. U. S. I:3; pp 8.

Dunlop, J. P.; Butler, B. S.—*Silver, Copper, Lead and Zinc in the Central States in* 1915. [Separate reviews of the area, districts, states and companies].—Min. Res. of U. S. I:5; pp 93.

Dunstan, B.—*Queensland Mineral Deposits, Australia.* [Occurrence, production, values, prospects and properties by the chief Government Geologist].—Queen. Gov't Mg. Jnl. July 15 1916; p 314; pp 1¾; 35c.

Dunstan, B.—*Queensland Mineral Deposits, Australia.* [A detailed description of nature of occurrence, production, prospects and methods of concentration of asbestos ores].—Queen. Govt. Mg. Jnl. Aug. 15 1916; p 372; pp 3½*; 35c.

Dunstan, B.—*Queensland Mineral Deposits.* [A review of occurrences, production, values and prospects of mica in Queensland, Australia].—Queen. Govt. Mg. Jnl. June 15 1916; p 263; pp 2; 35c.

Dunstan, B.—*Queensland Mineral Deposits.* [Aluminium, its deposits, production, occurrence and uses of the metal and its derivatives and ores are among the things reviewed].—Queen. Govt. Mg. Jnl. Oct. 14 1916; p 475; pp 3½; 35c.

Fay, A. H.—*Coal Mine Fatalities in the United States,* 1870-1914. [Also contains statistics on coal production, labor and mining methods by states and calendar years].—U. S. Bur. of Mines; Bull. 115; pp 366; 50c.

Fay, Albert H.—*Production of Explosives in the United States.* [Also contains notes on coal mine accidents due to explosives and a list of permissible explosives, lamps and motors tested before May 1 1916].—U. S. Bureau of Mines Tech. Paper 159; pp 24; 15c.

Firgueroa, T.; Carbonell, A.—*Notas Sobre Los Yacimientos Bismutiferos de Azuel, Cordoba, Spain.* [Notes on the nature and production of a bismuth ore in Spain].—Revista Minera Oct. 16 1916; p 491; pp 2; 35c.

Frood, G. E. B.—*South African Mining in* 1915. [Deals entirely with coal mining, production, accidents, timbering, sanitation and stone dusting].—Coll'y Guard. Nov. 10 1916; p 905; pp 1; 35c.

Gray, F. W.—*Nova Scotia Coal Production.*—Canadian Mg. Inst. Bull. Sept. 1916; p 801; pp 2; 50c.

Gray, F. W.—*The Coal Trade in Nova Scotia During the First Half of* 1916. [Figures on production and a review of the conditions of the trade].—Canadian Mg. Jnl. July 15 1916; p 339; pp 1¾; 35c.

Harris, H. W.—*Commercial Fertilizers in Germany.* [Considers the subject from a production and consumption view up to 1914].—American Fertilizer Sept. 2 1916; p 32; pp 2; 25c.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [Separate reviews of operations and production of the different counties. Conditions of the industry in the state as a whole are given and each of the metals is reviewed separately].—Min. Res. U. S. I:15; pp 35.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reviews of the metals and activities in each of the counties in the state].—Min. Res. of U. S. I: 17; pp 37.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Montana in* 1915. [Separate reports of each metal and briefs

on the metals collectively for each county].—Min. Res. of U. S. I:19; pp 36.

Heikes, V. C.—*Gold, Silver, Copper, Lead and Zinc in Utah in* 1915. [The production of each mineral is reviewed separate, as are the activities in each county of the state].—Min. Res. of U. S. 1:15; pp 25.

Heikes, C. V.—*Gold, Silver, Copper, Lead and Zinc in Arizona in* 1915. [Separate reports of the metals and counties' activities and production].—Min. Res. of U. S. I:17; pp 37.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in South Dakota and Wyoming in* 1915. [The report is made by counties, each state being considered separately].—Min. Res. of U. S. I:13; pp 13.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Each state is reviewed separately by counties and by separate metals for the state as a whole].—Min. Res. U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper and Lead in Wyoming and South Dakota.* [Separate reviews of operations and production of the states are given, with briefs on each county].—Min. Res. of U. S. I:13; pp 14.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in New Mexico and Texas in* 1915. [Both states are reviewed separately and separate reviews of the metals produced and operations by counties are included].—Min. Res. of U. S. I:14; pp 27.

Henderson, Charles W.—*Gold, Silver, Copper, Lead and Zinc in Colorado in* 1915. [Each metal is reviewed separately for the whole state and followed by reviews of the separate mines and mills by counties as regards their operation and production].—Min. Res. of U. S. I:16; pp 64.

Henderson, Charles W.—*New Mexico Metal Production in* 1915. [Abst. from a U. S. G. S. report. Zinc, lead and copper are considered].—Mg. & Oil Bull. Sept. 1916; p 227; pp 3*; 25c.

Hess, Frank L.—*Six Months' Tungsten Production.* [From a U. S. G. S. report].—Mg. World Aug. 5 1916; p 247; pp 2*; 10c.

Hess, Frank L.—*Tungsten Production During First Six Months of* 1916. [A report of the U. S. G. S.].—Chem. Eng. & Mfg. Nov. 1916; p 232; pp 1; 30c.

Hewett, D. F.—*Manganese and Manganiferous Ores in* 1915. [Primary ores, both domestic and foreign, are spoken of, as also are the production and values of ores].—Min. Res. of U. S. I:4; pp 15.

Hill, James M.—*Barytes and Strontium in* 1915. [Reviews by states and inclusion of a map showing location of deposits].—Min. Res. of U. S. II:15; pp 27.

Hill, James M.—*Platinum and Allied Metals in* 1915. [Reviews production in general, by states and foreign countries. Methods of refining and extracting from other metals is spoken of briefly].—Min. Res. of U. S. I:6; pp 19.

Hoffman, E. J.—*The Nitration of Toluene.* [On the formation of nitrates of toluene of different valences from toluene as a byproduct from water gas].—U. S. Bur. of Mines Tech. Paper 146; pp 31; 15c.

Hubbard, J. D.—*The Quartz Veins of Butte County, California.*—E. & M. J. Aug. 19 1916; p 352; pp 2*; 25c.

Katz, F. J.—*Abrasive Materials in* 1915. [Each material is reviewed separately].—Min. Res. of U. S. II:10; pp 16.

Katz, F. J.—*Feldspar in* 1915. [Reviews the occurrence and nature of the mineral, with methods of mining and refining and statistics on its production].—Min. Res. of U. S. II:7; pp 11.

Katz, Frank J.—*Silica in* 1915. [Takes up the uses of silica, its production in general and by states, with briefs on other important siliceous materials].—Min. Res. of U. S. II:8; pp 6.

Kotze, R. N.—*Far East Rand and Suggested Changes in the Gold Law.* [Abst. from a South African government report taking up operations and production with respect to suggested law].—Mg. Mag. Aug. 1916; p 75; pp 9*; 50c.

Jimenez, Carlos P.—*Estadistica Minera en* 1914, *Peru.* [Mineral statistics of Peru in 1914].—Cuerpo de Ingenieros de Minas Boletin No. 82; pp 150.

Lathrop, L. A.—*Coal Trade in Wales During* 1915. [Extract from a report of the U. S. Bureau of Commerce].—Coal Tr. Bull. July 1 1916; p 50: pp 3½; 25c.

Lesher, C. E.—*Coke in* 1915. [Besides a review of production and activities in detail, a map showing the location of all plants in the U. S. is given and the number of ovens at each is designated. Another table shows production by states from 1880 on].—Min. Res. of U. S. II:26; pp 44.

Lesher, C. E.—*Coal in* 1915. [Reviews of each producing state are made as regards operations and productions, besides a general review of conditions affecting the coal industry in the United States].—Min. Res. U. S. II:24; pp 87.

Lewis, J. H.—*Zinc and Lead Districts of Wisconsin.* [On the mining and smelter operations and production during the first half of 1916].—Mg. World Aug. 5 1916; p 243; pp 4*; 10c.

Loughlin, G. F.—*Lime in* 1915. [On the uses, units of measurement and production].—Min. Res. of U. S. II:19; pp 20.

Lyon, Burt W.—*Half-Year in the Joplin Lead-Zinc District, Missouri.* [Reviews prices, production and operations].—Mg. World Aug. 5 1916; p 239; pp 3*; 10c.

Matley, H. A.—*Canadian Metal Trades and Preparedness.* [Deals with the production and market prices of lead and copper in Canada. Separate reviews of provinces are given].—Canadian Mg. Inst. Bull. Sept. 1916; p 783; pp 7; 50c.

McCaskey, H. D.—*Quicksilver in* 1915. [Report by states and the United States on the production of the metal and market conditions].—Min. Res. of U. S. I: 11; pp 19.

McDonald, P. B.—*Mining Around Lovelock, Nevada.* [Costs and accounts of the silver properties in the district, with some information on their production is given. The principal companies are Rochester and Seven Troughs Coalition].—M. & S. P. July 1 1916; p 14; pp 2*; 20c.

McDonald, P. B.—*Two Great Copper Mines Compared.* [Compares operations, production, etc., of the Calumet and Hecla and Nevada Con. Co.].—M. & S. P. Sept. 9 1916; p. 391; pp 1½; 20c.

McLeish, John.—*The Production of Iron and Steel in Canada During* 1915. Production statistics and other information allied with the iron and steel trade are included].—Canada Mines Branch; Report 419; pp 48.

Middleton, Jefferson. — *Clay-Working Industries and Building Operations in the Larger Cities in* 1915. [Reviews the production and operations of clay pits and brick manufactures by states and the entire industry for the United States].—Min. Res. U. S. II:30; pp 68.

Middleton, Jefferson.—*Pottery in* 1915. [Treats on the production of materials used in the manufacture of pottery and the amount of pottery manufactured. The production of states is tabulated].—Min. Res. of U. S. II; pp 11.

Mills, E. W.—*Gold Mining in Korea.* [A paper contributed to the Royal Asiatic Soc. and abstracted here from the Mining Jnl. Information regarding the past and present operation and production of the mines in Korea is given].—M. & S. P. Dec. 23 1916; p 915; pp 1¾*; 20c.

Mills, E. W.—*Leading Gold Mining Operations in Korea.* [Abstract of a paper read before the Korean branch of the Royal Asiatic Soc. Deals with the production, operation and history of several concessions in the country].—Mg. World Dec. 9 1916; p 989; pp 1½; 10c.

Mudd, S. W.—*Mining and Metallurgical Progress in the Southwest.* [Address delivered before the Chamber of Mines and Oil, Los Angeles, being on the production of ores and metals].—Mg. World July 1 1916; p 11; pp 2; 10c.

Muth, E. G.—*Great Increase in Spelter Production.* [A review of production for the first half of 1916].—Zinc & Lead Jnl. June 1916; p 5; pp 2½; 20c.

Northrop, John D.—*Asphalt, Related Bitumens and Bituminous Rock in* 1915. [Reviews the production and industry for United States and foreign countries].—Min. Res. of U. S. II:13; pp 16.

Northrop, John D.—*Petroleum in* 1915. [A review is made of the industry with respect to United States as a whole and separate reviews are made of the industry in each state besides fields in foreign countries].—Min. Res. U. S. II:27; pp 202.

O'Harra, C. C.—*The Manganese Market.* [Statistics of production in foreign countries and for different years in the United States are given, besides prices of ore, the ways in which it is sold and production of some of the foreign countries].—Pahasapa Dec. 1916; p 32; pp 4; 35c.

Ohren, D. W.; Garrett, R. E.—*Ponca City Oil and Gas Field, Oklahoma.* [The geology, production and other items related to the field are spoken of and it is contended that many of the wells thought dry are not].—Okla. Geol. Surv. Bull. 16; pp 30*.

Orr, Charles T.—*Progress in Our Zinc Mines.* [Deals with progress in the mines of the Missouri-Kansas-Oklahoma district].—Zinc & Lead Jnl. June 1916; p 16; pp 2*; 20c.

Ortega, Pablo.—*Boletin De Minas, Cuba.* [Reviews the operations and production of the mines, mostly in the province of Pinar del Rio. The nature of the deposits and mines of the various companies are described. Several tables of statistics are given in the concluding pages].—Secretaria de Agricultura, Comercio y Minas, Bull. No. 1; pp 157*.

Parodi, Lorenzo.—*Ricordi e Note Sulla Metallurgia Italiana.* [A record of the metallurgical production of metals in Italy during 1914 and 1915].—Metallurgia Ital. April 30 1916; p 260; pp 15; $1.

Payne, Henry M.—*Mining the Frozen Gravels of the Arctic.* [A general account

of operations, production, etc., in Siberia]. —Sibley Jnl. Oct. 1916; p 2; pp 4½*; 30c.

Pearce, William.—*Consumption of Coal in the Prairie Provinces.* [Details for provinces, prices, etc., are included. Considerable of the information is tabulated]. —Canadian Mg. Inst. Bull. Sept. 1916; p 790; pp 5½; 50c.

Phalen, W. C.—*Bauxite and Aluminum.* [On the uses, methods of production, and production by states and countries]. —Min. Res. U. S.; pp 16.

Phalen, W. C.—*Salt, Bromine and Calcium Chloride in* 1915. [Deals with production only].—Min. Res. U. S. II:20; pp 12.

Phalen, W. C.—*Sulphur, Pyrite and Sulphuric Acid in* 1915. [A review of production and conditions, including some foreign countries].—Min. Res. U. S. II: 22; pp 16.

Phalen, W. C.—*The Conservation of Phosphate Rock in Tennessee.* [On the geology, nature and genesis of the deposits and methods of stripping and mining the deposits, with notes on production].— Res. of Tenn. Oct. 1916; p 193; pp 24*.

Phalen, W. C.; Hicks, W. B.—*Phosphate Rock in* 1915. [On the market, production, methods of making soluble phosphates and chemical tests for the mineral].—Min. Res. of U. S. II:18; pp 18.

Phalen, W. C.; Hicks, W. B.—*Potash Salts in* 1915. [Chemical qualitative tests and methods of analysis are also given. The economic geology and occurrence of this mineral are reviewed with an account of the progress made in developing the resource in this country].—Min. Res. of U. S. II:12; pp 39.

Rakusin, M. A.—*Ueber die Fortschritte der Naphthologie in Russland im Jahre* 1913. [On the oil industry in Russia in 1913 including the production of by-products from petroleum].—Petroleum Oct. 21 1914; p 57; pp 4½; Nov. 4 1914; p 98; pp 3½; $1.20.

Rickard, T. A.—*Reopening of Old Mines Along the Mother Lode, California.* [A review of conditions past and present, with cost and production figures given].—M. & S. P. Aug. 12 1916; p 236; pp 5½*; 20c.

Robinson, Heath M.—*The Ozokerite Field in Central Utah.* [Abst. from a U. S. G. S. Bulletin. Genesis, properties, production, concentration, etc., are considered].—Mg. World Sept. 16 1916; p 497; pp 1¾*; 10c.

Ryan, Edward.—*Biennial Report of the State Inspector of Mines, Nevada,* 1913-1914. [An account of the metal production by counties and separate descriptions of accidents].—Report; pp 52.

Schaller, Waldemar T.—*Gems and Precious Stones in* 1915. [Briefs on the production and activities of each state are given].—Min. Res. of U. S. II:20; pp 16.

Schaller, Waldemar T.—*Mica in* 1915. [Gives prices, imports, exports, uses, production, nature and place of occurrence, foreign markets and general conditions of the industry in U. S.].—Min. Res. U. S. II:21; pp 14.

Schrader, Frank C.—*Geology and Ore Deposits of Mohave County, Arizona.* [Published by permission of the U. S. G. S. Geology of the district and of several of the mines, with figures on their production is given].—Bull. A. I. M. E. Nov. 1916; p 1935; pp 33*; 35c.

Shumway, Ralph W.—*The Coal Industry of Colorado.* [A general review of the industry in Colorado and the coal production].—Colo. School of Mines Qt'ly April 1916; p 26; pp 7; 35c.

Siebenthal, C. E.—*Lead in* 1915. [On the production and market conditions in United States and briefs on several foreign countries].—Min. Res. U. S. I:9; pp 19.

Siebenthal, C. E.—*Production of Primary Spelter First Half of* 1916. [Abst. from U. S. G. S. semi-annual report].— Mg. World Aug. 26 1916; p 370; pp 1¾; 10c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Manganese Ores of the Lafayette District, Minas Geraes, Brazil.* [Separate description on different districts and mines, also the nature of the ore and geology].—Bull. A. I. M. E. Oct. 1916; p 1745; pp 18*; 35c.

Singewald, Joseph T., Jr.; Miller, Benjamin.—*High-Grade Manganese Ores of Brazil.* [Excerpts from an article in Iron Age. A general description of the several deposits, mining and transportation costs and production are given].—Pan-American Union Bull. Nov. 1916; p 601; pp 5½*; 35c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*The Mining Industry of Bolivia.* [A general description, with some details of the people, geography of the country and operation and production of the mines].—E. & M. J. Dec. 9 1916; p 1005; pp 5*; 25c.

Smeeth, W. F.—*Annual Report for the Year* 1914. [Part I takes up production and general conditions of the industry, while Part II is more of a geologic nature on several of the districts in the

state].—Mysore Dept. of Mines and Geol.; pp 188*; $1.75.

Smith, E. A.—*The Development of the Spelter Industry.* [Treats on the production and conditions of the market for the year].—Jnl. Soc. of Chem. Ind. Oct. 16 1916; p 996; pp 2½; 60c.

Spencer, Arthur C.—*The Atlantic Gold District and North Laramie Mountains, Fremont, Converse and Albany Counties, Wyoming.*—U. S. G. S. Bull. 626; pp 85*.

Stone, Ralph W.—*Gypsum in* 1915. [Reviews the uses, methods of refining and production].—Min. Res. of U. S. II:14; pp 9.

Stone, R. W.—*Sand and Gravel in* 1915. [Gives tabulated production by states, states in which glass-sand was produced and weight of sand and gravel per cubic yard].—Min. Res. U. S. II; pp 13.

Verne, C. E.—*Zinc's Record Breaking Year.* [A review of the first part of 1916 in the Joplin district].—Zinc & Lead Jnl. June 1916; p 3; pp 2*; 20c.

Wagner, P. A.—*Economic Geology and Mineral Industry of Southwest Africa.*—S. Afr. Mg. Jnl. July 1 1916; p 311; pp 1; 35c.

Wagner, William.—*Coeur d'Alene Mining Information.* [Financial statements of the larger companies are given and production and value thereof for the smaller ones. Brief separate accounts of each company in the district are also given].—Wagner, Wallace, Ida.; book; pp 174; $4.

Wilson, A. W. G.—*On the Possibility of Producing Refined Copper in Canada.* [Published by permission of the Mines Branch, Ottawa, Ont. The deposits, reserves and refining of copper in Canada are discussed].—Canadian Mg. Jnl. Nov. 15 1916; p 529; pp 6½; 35c.

Wilson, Alfred W. G.—*Report on the Production of Spelter in Canada in* 1916. [Considerable miscellaneous information relative to zinc mining and smelting is given, besides production of the metal. Labor, mining and smelting costs are also given in some detail].—Canada Dept. of Mines, Mines Branch Report 428; pp 60.

Yale, Charles G.—*Borax in* 1915. [Most of this product comes from southern California].—Min. Res. U. S. II:32; pp 2*.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California and Oregon in* 1915. [Reviews the production by counties and in general].—Min. Res. of U. S. I:10; pp 51.

Yale, Charles G.—*Gold, Silver, Copper, Lead and Zinc in California in* 1915.—Min. Res. of U. S. I:10; pp 51.

——— *Aluminum.* [On the production and conditions of the trade, with some information on the refining of the metal].—Engg. July 7 1916; p 9; pp 1; 35c.

——— *Baku Russian Petroleum.* [A review of operations and production in the district].—Petro. World Sept. 1916; p 426; pp 3; 35c.

——— *Baku Russian Petroleum Co., Russia.*—Petro. World Sept. 1916; p 426; pp 3; 35c.

——— *British Association for the Advancement of Science.* [A report of the Fuel Economy Committee, dealing with the use, consumption and conservation of coal in different industries]. — Coll'y Guard. Sept. 15 1916; p 499; pp 4*. I. & C. Tr. Rev. Sept. 15; p 299; pp 5*; 35c.

——— *British Columbia Annual Report of the Minister of Mines for* 1915. [Reviews metal production in general for the province and in detail for operating companies].—Mg. Engg. & Elect. Rec. Aug. 1916; p 76; pp 3½; 35c.

——— *British Columbia Report of the Minister of Mines.* [On the production and mineral industry of the provinces].—Mg. & Engg. Rec. Oct. 1916; p 92; pp 1½; 35c.

——— *British Fertilizer Notes.*—American Fertilizer Aug. 5 1916; p 36; pp 3; 25c.

——— *California Mineral Production.*—E. & M. J. Dec. 9 1916; p 971; pp 1½; 25c.

——— *Canadian Metal Trades and Preparedness.* [A study of production, imports and exports].—Canadian Mg. Inst. Bull. Aug. 1916; p 675; pp 16½; 35c.

——— *Coal Exports and Bunker Shipments in* 1914 *and* 1915 *in the United Kingdom.* [Parliamentary report showing the amount of coal shipped from each United Kingdom port to each foreign port].—I. & C. Tr. Rev. July 21 1916; p 74; pp 2; 35c.

——— *Coke Production for Nine Months of 1916.* [From the Connellsville Courier].—Coal Tr. Bull. Nov. 1 1916; p 27; pp 1¾; 25c.

——— *Die Bergwerksindustrie und Bergverwaltung Preussens im Jahre* 1913. [The mining industry of Prussia in 1913. Coal for the greater part is produced here].—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 367; pp 43½; $1.50.

——— *Die Petroleumindustrie Russlands im Jahre* 1913. [The petroleum industry and production in Russia in 1913].—Petroleum Oct. 7 1914; p 14; pp 2; 60c.

——— *El Acero Martin en el Mundo.* [The production of high-speed steels in the world compared with other classes of steel].—Revista Minera Aug. 24, 1916; p 402; pp 2; Sept. 1; p 417; pp 1¼; Sept 8; p 428; pp 1¾; Sept. 16; p 437; pp 3¼; Sept. 24; p 453; pp 1½; Oct. 1; p 462; pp 2¼; $2.10.

——— *Graphite.* [Its production and conditions in the principal markets of the world].—Mg. Jnl. Dec. 2 1916; p 793; pp 1½; 35c.

——— *Great Gold Mines on the Rand, South Africa.* [Treats on their production].—M. & S. P. Sept. 2 1916; p 332; pp 4¼*; 20c.

——— *Iowa State Mine Inspector's Report for the Biennial Period Ending Dec.* 31 1915. [Reviews operations by counties, giving mine production and new equipment installed at mines, with accidents in the district in tabulated form].—State Mg. Bur. Report; pp 112.

——— *Italy's Coal Trade During War Doubles with America.* [Reviews the situation, production, imports and exports].—C. Tr. Bull. Aug. 1 1916; p 40; pp 2½; 25c.

——— *Japanese Mining Expansion.*—E. & M. J. July 15 1916; p 143; pp 1; 25c.

——— *Kleinfontein, South Africa.* [Deals with the future of the district and reviews the production, financial information and general mine operations in the district].—S. Afr. Mg. Jnl. Aug. 12 1916; p 440; pp 1¼*; 35c.

——— *Metal Production of Ontario, First Half of* 1916.—Mg. World Oct. 7 1916; p 626; pp 1; 10c.

——— *Mining in India.* [From production statistics issued by the Indian Geol. Surv.].—Mg. Jnl. Dec. 9 1916; p 812; pp 2; 35c.

——— *New South Wales in* 1915. [Reviews the production of metals in the country].—Mg. Jnl. Sept. 2 1916; p 596; pp 2; 35c.

——— *Ontario's Metal Production.* [From the Canadian Bureau of Mines report].—Canadian Mg. Jnl. Dec. 1 1916; p 555; pp 1¼; 35c.

——— *Outlook in the Galician Oil Industry.* [Discusses several items affecting the industry].—Petro. World Aug. 1916; p 369; pp 1¾; 35c.

——— *Pipe-Line Transportation of Petroleum.* [Full financial, cost, construction and operation accounts of various pipe lines in U. S. are given].—U. S. Federal Trade Commission Report; pp 467*.

——— *Pretoria Inspectorate of Mines,* 1915 *Annual Report.*—S. Afr. Mg. Jnl. Oct. 7 1916; p 122; pp 1; 35c.

——— *Rhodesia Chamber of Mines, Annual Report,* 1915. [Questions brought up during the year are spoken of, with accounts of the production of various metals and a review of the labor bureau].—Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Rhodesia Chamber of Mines Executive Committee Report and Output of Gold and Other Minerals in April,* 1916. [The output of separate producers is given].—Rhodesia Chamber of Mines Report April 1916; pp 5.

——— *Rhodesia Chamber of Mines Report of the Executive Committee.* [Tables of details of the production of gold and asbestos properties in the district are given].—Rhodesia Chamber of Mines Report Aug. 1916; pp 6.

——— *Rhodesia Output of Gold and Other Metals and Minerals, July* 1916.—Rhodesia Chamber of Mines Report; pp 6; 35c.

——— *Rhodesia Report of the Executive Committee of the Chamber of Mines and Production of Gold and Other Minerals in May,* 1916. [The production of operating gold companies is given individually].—Rhodesia Chamber of Mines Report May 1916; pp 6.

——— *Russian Petroleum Company.* [Discusses operations for part of 1916, including profits, production and deep drilling].—Petro. World Sept. 1916; p 431; pp 3; 35c.

——— *Six Months of Wonderful Prosperity for United States Mining.* [Reviews the first half of the year's production].—Mg. World Aug. 5 1916; p 229; pp 8¼*; 10c.

——— *Statistical Position of Spelter.* [Editorial review].—E. & M. J. Dec. 2 1916; p 993; pp 1; 25c.

——— *Sullivan Mine, East Kootenay, B. C.* [A description of mine operations and production, with an account of the geology of the formation and nature and occurrence of the ore bodies].—Canadian Mg. Jnl. Sept. 15 1916; p 444; pp 2¼; 35c.

——— *Sulphur, Pyrites and Sulphuric Acid.* [A review of production and conditions for the world].—Mg. Jnl. Nov. 4 1916; p 730; pp 1¼; 35c.

——— *The International Movement of Fertilizers and Chemical Products Useful to Agriculture.* [A review by tables and discussion of the production, imports and exports of fertilizing materials of all the countries of the world].—International Inst. of Agriculture, Rome; pp 76.

——— *The Occurrence and Uses of Nickel Ores.* [Canada, New Caledonia and Norway are the principal countries reviewed, as regards production, occurrence, etc.].—Bull. Imp. Inst., E. C., 1916, No. 14; p 228; pp 26.

——— *The Swedish Iron, Steel and Coal Industry in* 1915. [Some of the statistics, curves, etc., are taken from Jern-Kontoret's Annaler].—I. & C. Tr. Rev. Nov. 17 1916; p 614; pp 1*; 35c.

——— *Tin Smelting Capacity of the World.* [Gives the possible production of tin from different companies' plants and from different districts].—Mg. Jnl. Sept. 23 1916; p 645; pp 1½; 35c.

——— *Transvaal Chamber of Mines Report for* 1915. [A general account of the mineral industry in the state].—Transvaal Chamber of Mines Report.

——— *Transvaal Chamber of Mines August Analysis of Gold Production.* [Tonnage, yield, working costs, profits, dividends, etc., are given separately in tabulated form for each company].—Transvaal Chamber of Mines Aug. Report; pp 6.

——— *Union Tin Mining Progress.* [On production and general condition of the industry in South African fields].—S. Afr. Mg. Jnl. Sept. 16 1916; p 55; pp 1; 35c.

——— *United States Mint, Report of* the text has to do with the nature of dif- *the Director for the Year of* 1916. [A report of the production of precious metals for 1915 and the Mint's operations to June 30 1916].—Treasury Dept. Annual Report of Mint; pp 286.

——— *Zinc Mines in Tonkin, French Indo-China.* [Taken from a report of the Department of Commerce. A general review of the industry and conditions in the country today are given].—E. & M. J. Nov. 18 1916; p 900; pp 2¼; 25c.

MILL AND MILLING.

CHAPTER XVI.

SAMPLING

Burch, Kenyon.—*Mine and Mill Plant of the Inspiration Consolidated Copper Co., Arizona.* [A complete description of plant equipment and operations from underground pockets to the finished concentrate].—Bull. A. I. M. E. Sept. 1916; p 1467; pp 33*; 35c.

Fulton, Charles H.—*The Buying and Selling of Ores and Metallurgical Products.* [Methods of sampling and the different ways in which ores are settled for and penalized are explained].—U. S. Bur. of Mines Tech. Paper 83; pp 42; 15c.

Heath, George L.—*The Analysis of Copper and Its Ores and Alloys.* [Methods of analysis and assay for different products containing copper].—McGraw-Hill; book; pp 292*; $3.

Herr, Irving.—*Some Observations on Sampling.* [Points out instances in this process where errors may be made to as great an extent as 49%].—E. & M. J. Dec. 9 1916; p 1015; pp 2¼*; 25c.

Landers, W. H.—*The Smelting of Mercury Ores.* [Speaks of the general thermic methods now in common use and mentions the open field here for hydrometallurgical methods and investigation].—E. & M. J. Oct. 7 1916; p 630; pp 5*; 25c.

Lodge, F. S.—*The Sampling of Fertilizers.* [Details of different methods in common use].—Amer. Fertilizer Oct. 14 1916; p 26; pp 3*; 25c.

McGregor, A. G.—*Features of the New Copper Smelting Plants in Arizona.* [Treats on the transportation and sampling of the ores as well as actual furnace practice].—Bull. A. I. M. E. Aug. 1916; p 1257*; 35c.

Rose, Hugh.—*Santa Gertrudis Mill, Pachuca, Mexico.* [Abst. from A. I. M. E. Bull. All-sliming process is used and details of construction, operation and equipment are given].—E. & M. J. Aug. 5 1916; p 247; pp 6*; 25c.

Shaw, Edmund N.—*Discrepancies in Cyanidation.* [Speaks of discrepancies from theft, leakage, waste, estimation of tonnage, sampling and assaying].—M. & S. P. July 15 1916; p 92; pp 2¾; 20c.

Trewartha-James, W. H.—*Taylor's Pulp Sampler.* [A discussion of the original article].—Inst. of Mg. & Met. Bull. 146; pp 15*; 50c.

Turnbull, J. M.—*Relations Between Custom Smelters and Small Mine Owners.* [Abst. of an address to the Vancouver Chamber of Mines. Deals with the ways in which the ore is purchased by the smelters].—Mg. World July 8 1916; p 47; pp 2¾; 10c.

Young, George J.—*The Selection of a Method for Ore Treatment.* [On methods of testing and investigating new ores for refining treatment].—Met. & Chem. Engg. Sept. 15 1916; p 297; pp 2¾; 35c.

Woodbridge, T. R.—*Ore Sampling Conditions in the West.* [Excerpts from advance proofs of Tech. Paper 86 of the U. S. Bureau of Mines. Six methods of sampling are described which are in common use in the west and the particular classes of sampling for which each is fitted is given].—Mg. World July 29 1916; p 183; pp 3*; Aug 12 1916; p 279; pp 1¾; Oct. 7 1916; p 619; pp 2¼; Oct. 21 1916; p 703; pp 1*; Sept. 23 1916; p 537; pp 2; 50c.

CRUSHING, GRINDING, ETC.

Blackstone, Richard.—*A History of the Homestake Mine, S. D.* [Abst. from Pahasapa Quarterly. Reviews the progress of the company, mill and mines].—Mg. World July 15 1916; p 99; pp 3¼*; 10c.

Blickenderfer, F. C.—*A Comparative Test of the Marathon, Chilean and Hardinge Mills.* [Tests made at the Detroit Copper Co.'s plant, Morenci, Ariz.].—Bull. A. I. M. E. Aug. 1916; p 1333; pp 16*; 35c.

Bradley, George.—*Crushing and Grinding.* [The use of various kinds of crushing and grinding machinery at present is discussed, as noted from results now being obtained in various mills of the world].—Jnl. Chem. Met. & Mg. Soc. of S. Afr. Sept. 1916; p 39; pp 2¼; 50c.

Brantly, J. E.—*A Report on the Limestones and Marls of the Coastal Plain of Georgia.* [The geology of the formation and descriptions of deposits by counties. The uses and preparation of the rock are also given].—Georgia Geol. Surv. Bull. No. 21; pp 300*.

Burch, Kenyon.—*Mine and Mill Plant*

of the Inspiration Consolidated Copper Co., Arizona. [A complete description of plant equipment and operations from underground pockets to the finished concentrate].—Bull. A. I. M. E. Sept. 1916; p 1467; pp 33*; 35c.

Burch, Kenyon H.—*Concentration at Inspiration.* [Abst. from the Bulletin of the A. I. M. E. Ball mill grinding, methods of handling the tailings to thickeners and haulage systems are considered].—E. & M. J. Sept. 9 1916; p 457; pp 3½*; Sept. 23 1916; p 537; pp 5¾*; 50c.

Clark, Walter C.—*Electricity at the Bunker Hill & Sulivan Mines, Idaho.* [On the equipment and use of electricity in the mills, rock house, for pumping, hoisting, haulage and signaling].—Jnl. Elect. Power & Gas Dec. 23 1916; p 483; pp 3¼*; 35c.

Cole, David.—*Grinding Mills at the Inspiration.* [Discussion of a paper read before the A. I. M. E., in which comparison of two types of ball-mills was made].—M. & S. P. Dec. 9 1916; p 831; pp 1¾; 20c.

Cook, Paul R.—*Cyaniding Clayey Ore at the Buckhorn Gold Mine, Nevada.* [Crushing, cyaniding, and details of mining and milling costs per ton are considered].—Bull. A. I. M. E. Sept. 1916; p 1555; pp 9*; 35c.

De Kalb, Courtenay.—*Stamp vs. Ball Mill.* [A comparison of the two types of crushers].—M. & S. P. Sept. 2 1916; p 339; pp 1¼; 20c.

Dunning, C. H.—*The Big Pine Cyanide Mill, Arizona.* [An 80-ton mill making 90% extraction at $1.37 per ton. Lead, silver and gold, with no copper or zinc, makes up the ore].—E. & M. J. Dec. 16 1916; p 1043; pp 1¾*; 25c.

Eddy, Lewis H.—*The Argonaut Mine, California.* [On the installation of a dam for storing tailings, power pumps and experimental work with flotation].—E. & M. J. Aug. 5 1916; p 265; pp 2¾*; 25c.

Gahl, Rudolph.—*Operations and Methods in Use at the Inspiration Property, Arizona.* [A flow sheet of the mill, with considerable statistical data on the distribution of power, milling and flotation work].—Mg. World Nov. 11 1916; p 825; pp 3*; 10c.

Gudgeon, C. W.—*Milling Scheelite-Gold Ores.* [Abst. from a paper read before the Aust. Inst. of M. E. Flow sheets and costs are given, with description].—E. & M. J. Aug. 19 1916; p 346; pp 2*; 25c.

Hoover, Theodore J.—*Concentrating Ores by Flotation.* [Third edition describing different processes, patents, litigation, history, etc.].—Mg. Mag.; book; pp 320*; $3.75.

Howard, L. O.—*Copper Metallurgy at Garfield, Utah.* [Describes crushing, concentration, flotation and smelting as regards equipment and operations].——M. & S. P. July 8 1916; p 54; pp 3½; 20c.

Jones, T. R.—*Pine Oil for Flotation Purposes.* [On experiments made to ascertain the proper destructive distillation of Norway pine for flotation oils].—Canadian Mg. Inst. Bull. Oct. 1916; p 882; pp 2; 35c.

Labbe, Charles. — *Replacing Mortar Blocks in Stamp Mills.*—E. & M. J. Aug. 26 1916; p 391; pp 1¾*; 25c.

Lamb, M. R.—*Don Luis Charme's Tremain Steam Stamp.* [Some details of worries which come to consignees of mining machinery in South America].—E. & M. J. July 1 1916; p 17; pp 2¾*; 25c.

McCombie, J.—*The Milling of Gold Ores.* [Practical hints on various phases of the process].—Mg. & Engg. Rev. Oct. 5 1916; p 8; pp 1¼; 35c.

Merrill, F. J. H.——*Recent Ball Mill Types for Grinding Ores.* [Detailed description of Hardinge and Marcy ball-mills].—Mg. & Oil Bull. Oct. 1916; p 251; pp 4½*; Nov. 1916; p 273; pp 2½*; 50c.

Parker, S. M.—*Plant of the Babylonia Gold Mines, Nicaragua.* [Detailed description of the cyanide plant, which uses pneumatic stamps, and the results obtained at the plant in the various steps of the process].—M. & S. P. Dec. 23 1916; p 911; pp 4*; 20c.

Plummer, W. L. — *Successful Dry Placer Operations at Plomosa, Arizona.* [Speaks of early operations and the present methods of dry crushing and concentrating. Tables using air instead of water are used].—Mg. World July 1 1916; p 1; pp 3*; 10c.

Pope, George S.—*Methods of Sampling Delivered Coal.* [Methods of sampling used in the government purchase of coal].—U. S. Bur. of Mines Bull. 116; pp 64*; 25c.

Ralston, O. C.—*An Explanation of the Flotation Process.* [Discussion of a paper by A. F. Taggart and F. E. Beach].—A. I. M. E. Bull. Dec. 1916; p 2232; pp 2; 35c.

Ralston, O. C.—*The Flotation of Minerals.* [Discussion of a paper by R. J. Anderson].—A. I. M. E. Bull. Dec. 1916; p 2234; pp 2; 35c.

Rickard, T. A.—*The Britannia Mine and Mill, British Columbia.* [Details on the mill equipment and operation, with

further information on the mine workings and deposits].—M. & S. P. Nov. 11 1916; p 693; pp 8*; 20c.

Robins, Hallet R.—*Flotation at the Calaveras Copper—A Simple Flow-Sheet.* [Costs, transportation and the ore body are described, besides the flotation system. No table concentration is employed at all].—M. & S. P. Nov. 25 1916; p 769; pp 5*; 20c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.

Scott, W. A.—*Commonwealth Mine and Mill, Pearce, Arizona.* [Gives details on operations and description of methods used].—Mg. World July 29 1916; p 187; pp 1½*; 10c.

Scott, W. A.—*Mining and Milling at Robinson, Colorado.* [Describes the mines and plant of the Progress Co. Flotation is used in the mill].—Mg. World Nov. 18 1916; p 865; pp 1¼*; 10c.

Scott, W. A.—*Nevada Douglas Mines and Mill.* [Describes the geology, mine workings and equipment, with more details on the crushing and leaching plants].—Mg. World Aug. 12 1916; p 277; pp 2*; 10c.

Scott, W. A.—*Operations at Battle Mountain, Nevada.*—Mg. World Aug. 19 1916; p 327; pp 2*; 10c.

Scott, W. A.—*Operations of the Magma Copper Co., Superior, Arizona.* [Gives a brief detailed description of the mine, crushing and concentration].—Mg. World July 1 1916; p 9; pp 1¼*; 10c.

Scott, W. A.—*Sulphidizing Carbonate Tailings for Treatment by Oil Flotation.* [While being agitated the crushed ore as carbonate is changed to a metallic sulphide by the addition of sodium sulphide].—Mg. World Dec. 2 1916; p 946; pp 1; 10c.

Shellshear, W.—*Flotation at the Mt. Morgan Mine, Queensland, Australia.* [A paper read before the Aust. Inst. of Mg. Eng. Operations are described though tests are given more consideration].—Mg. World Oct. 28 1916; p 741; pp 3; 10c.

Shellshear, W.—*Flotation of Gold and Copper Ores at Mount Morgan Mine, Queensland, Australia.* [Abstract of a paper read before the Aust. Inst. of Mg. Eng. The testing of different oils and different methods of concentration are told of].—Mg. World Dec. 2 1916; p 947; pp 1½; 10c.

Thomson, Herbert G.—*Construction and Operation of the Nevada Packard Mill.* [A cyanide plant treating ore in which the principal mineral is cerargyrite].—M. & S. P. Sept. 9 1916; p 377; pp 8*; 20c.

Young, George J.—*The Selection of a Method for Ore Treatment.* [On methods of testing and investigating new ores for refining treatment].—Met. & Chem. Engg. Sept. 15 1916; p 297; pp 2¾; 35c.

——— *A Comparative Test of the Marathon, Chilean and Hardinge Mills.* [Discussion].—A. I. M. E. Bull. Dec. 1916; p 2184; pp 13½; 35c.

FLOTATION

Adams, Maxwell.—*A New Flotation Oil.* [On sage-brush oil and the methods of extracting the same].—Bull. A. I. M. E. Sept. 1916; p 1683; pp 2; 35c.

Anderson, R. J.—*Metallurgical Disposal of Flotation Concentrates.* [Missouri School of Mines Bulletin. Treats on the breaking and dewatering of the froth and the final methods of smelting the concentrate].—Mg. World July 8 1916; p 57; pp 2¾; 10c.

Anderson, R. J.—*The Flotation of Minerals.* [A general detailed discussion and description of theory and practice].—Bull. A. I. M. E. July 1916; p 1119; pp 18; 35c. M. & S. P. July 8 1916; p 47; pp 3¾; 20c; Met. & Chem. Engg. July 15 1916; p 82; pp 4¾; 30c.

Belchic, George; Neal, Roy O.—*Surface Tension of Oil-Water Emulsions—A Flotation Theory.* [The surface tension of emulsions acid, alkaline and neutral are given for varying amounts of different kinds of oils as determined by the capillary method].—Mg. World Sept. 16 1916; p 487; pp 3*; 10c.

Burch, Kenyon.—*Mine and Mill Plant of the Inspiration Consolidated Copper Co., Arizona.* [A complete description of plant equipment and operations from underground pockets to the finished concentrate].—Bull. A. I. M. E. Sept. 1916; p 1467; pp 33*; 35c.

Canby, R. C.—*Some Notes on Flotation.* [A personal account of experience with flotation work during its early days].—E. & M. J. July 1 1916; p 29; pp 1¾; 25c.

Clayton, C. Y.—*Experiments from the Flotation Laboratory.* [Considerable of the text has to do with the nature of different oils. Description of laboratory flotation machines and tests made on different ores are also given].—Mo. School of Mines Bull. Aug. 1916; pp 40*.

Clayton, Charles Y.—*Sizing Flotation Concentrates.* [Abstract from an article in the Bulletin of the Missouri School of Mines, in which the results of tests made are given and discussed].—E. & M. J. Nov. 11 1916; p 867; pp ¾; 25c.

Clevenger, G. H.—*A New Source of Flotative Agents.* [Discusses oils, acids, etc., including sage-brush oil].—Bull. A. I. M. E. Sept. 1916; p 1685; pp 8*; 35c.

Coghill, Will H.—*Molecular Forces and Flotation.*—M. & S. P. Sept. 2 1916; p 341; pp 8¾*; 20c.

Cole, David.—*The Advent of Flotation in the Clifton Morenci District, Arizona.* [Describes methods used in the district leading to the use of flotation machines].—Bull. A. I. M. E. Sept. 1916; p 1611; pp 16*; 35c.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine, with respect to their production, activities, profits and costs].—T. & N. O. Commission; Toronto; Report; pp 71*.

Eddy, Lewis H.—*The Argonaut Mine, California.* [On the installation of a dam for storing tailings, power pumps and experimental work with flotation].—E. & M. J. Aug. 5 1916; p 265; pp 2¾*; 25c.

Elmore, A. Stanley.—*The Invention, Development and Introduction of the Flotation Process.* [A general historical account of the process carrying the method to a point where it was practically introduced].—M. & S. P. Sept. 23 1916; p 449; pp 6½; 20c.

Gahl, Rudolf.—*History of the Flotation Process at Inspiration, Arizona.* [Describes tests made and methods adopted, with the results obtained in each. The paper is complete and gives details].—Bull. A. I. M. E. Sept. 1916; p 1627; pp 54*; 35c; Met. & Chem. Engg. Oct. 1 1916; p 393; pp 12½*; 35c.

Gahl, Rudolph.—*Operations and Methods in Use at the Inspiration Property, Arizona.* [A flow sheet of the mill, with considerable statistical data on the distribution of power, milling and flotation work].—Mg. World Nov. 11 1916; p 825; pp 3*; 10c.

Gayford, Ernest.—*Flotation at the Calaveras Copper Mine, California.* [Correspondence regarding a comparison of the National mill, Idaho, and the Calaveras mill, Calif.].—M. & S. P. Dec. 16 1916; p 868; pp ¾; 20c.

Gregory, S.—*Agreement Between Minerals Separation and the Inspiration-Anaconda Companies.* [Gives the final conclusions arrived at as a result of the lawsuit in regard to flotation equipment].—M. & S. P. Sept. 16 1916; p 424; pp 2; 20c.

Handy, R. S.—*Bunker Hill & Sullivan Milling Data.* [Flow sheets and drawings, with brief description of operations and detailed cost sheet are dealt with].—E. & M. J. July 1 1916; p 35; pp 2¼*; 25c.

Hilderbrand, Joel H.—*Principles Underlying Flotation.* [Abst. of an illustrated lecture before the American Chem. Soc. and A. I. M. E.].—M. & S. P. July 29 1916; p 168; pp 3*; 20c.

Howard, L. O.—*Copper Metallurgy at Garfield, Utah.* [Describes crushing, concentration, flotation and smelting as regards equipment and operations].—M. & S. P. July 8 1916; p 54; pp 3½; 20c.

Hughes, Ben. — *Concentrating Cobalt Silver Ores by the Oil Flotation Process.* [Brief description of plants using the system in the Cobalt district, Ontario].—Canadian Mg. Jnl. Aug. 1 1916; p 365; pp ¾; 35c.

Hyde, James M.—*An Improved Pneumatic Flotation Machine.* [Description of the machine, its application and operation].—M. & S. P. Aug. 5 1916; p 199; pp 3*; 20c.

Laist, Frederick; Wiggi, A. E.—*Flotation Concentration at Anaconda.* [Parts of a paper read before the A. I. M. E.].—M. & S. P. Dec. 9 1916; p 847; pp 2; 20c.

Lewis, R. S.; Ralston, O. C.—*Patents Relating to Oil-Flotation Processes.* [Short descriptions of patents dating from 1879 on are given].—Utah Engg. Experiment Sta. Bull. No. 8; pp 56.

Lyon, D. A.; Ralston, O. C.; Laney, F. B.; Lewis, R. S.—*Bibliography of Recent Flotation Literature.* [A paper issued by the U. S. Bureau of Mines. The articles are those appearing in journals and periodicals and briefs of the article are given].—Chem. Eng. & Mfg. Nov. 1916; p 215; pp 3; 30c.

Megraw, H. A.—*Apparatus Used in Flotation.* [Describes the three principal types of machines as Minerals Separation, Callow and Woods machines].—E. & M. J. July 1 1916; p 5; pp 3½*; 25c.

Megraw, H. A.—*Use of Oils in Flotation.* [Discusses the qualities of several kinds of oils and deals also with the action of oils in making the minerals float].—E. & M. J. July 1 1916; p 50; pp 6¾; 25c.

Megraw, Herbert A.—*The Flotation Process.* [On the theory, practice and testing of the process, with descriptions

of installed plants].—McGraw-Hill Book Co.; book; pp 249*; $2.50.

Morrison, A. G.—*A Few Notes on Callow Flotation.*—Canadian Mg. Jnl. Sept. 1 1916; p 417; pp 1; 35c.

Motherwell, William.—*Chronology of Flotation.* [A list of the companies which adopted flotation before 1914. Daily tonnage, metals in the ores and process employed are given in this table].—E. & M. J. Dec. 9 1916; p 1012; pp 1½; 25c.

Mueller, W. A.—*Froths Formed by Flotation Oils.* [Pine oil is mostly used. Experience in the use of several oils is given and the variations in different consignments is taken up].—E. & M. J. July 1 1916; p 31; pp 4¾*; 25c.

Palmer, R. C.; Allen, G. L.; Ralston, O. C.—*Some Miscellaneous Wood Oils for Flotation.*—Bull. A. I. M. E. Aug. 1916; p 1387; pp 10; 35c.

Parmelee, H. C.—*Recent Developments in Zinc Concentration Practice in the Joplin District, Missouri.* [Details of results on the jigging and table methods now used. The possibilities of flotation are also reviewed].—Met. & Chem. Engg. Sept. 15 1916; p 319; pp 2¾; 35c.

Pearce, Jackson A.—*Flotation Tribulations.* [The results of operations and investigations made in the Idaho Springs district, Colorado].—M. & S. P. Sept. 16 1916; p 427; pp 4*; 20c.

Penhoel, L. C.—*Notes on Flotation in the Southwest.* [A general review of flotation methods being used in that section of the country].—Mg. World Oct. 7 1916; p 623; pp 1¾; 10c.

Pilgrim, Earl R.—*Flotation Tests on an Antimony Gold Ore.* [Tests conducted at the Washington College of Mines].—E. & M. J. Nov. 4 1916; p 820; pp ¾; 25c.

Pringle, L. B.—*Chart for Flotation Testing.* [A reproduction of the chart with explanation and formulas is given].—E. & M. J. Oct. 21 1916; p 749; pp 1¼*; 25c.

Rain, Allan D.—*The Separation of Galena from Blende by the Horwood Process of Flotation.* [Abst. from Teniente Topics].—M. & S. P. Oct. 7 1916; p 529; pp 1½; 20c.

Ralston, O. C.; Allen, Glen L.—*The Flotation of Oxidized Ores.* [Discusses problems encountered in flotating different kinds of oxide ores. The results of some tests are given].—Mg. World July 22 1916; p 137; pp 3¼; 10c.

Ralston, O. C.; Lyon, D. A.—*The Present Status of the Ore Flotation Process.* [A paper read before the American Mg. Cong., in which a general review and description of the process is first given and followed by a review of its application to various types of ores].—Mg. World Nov. 25 1916; p 911; pp 1; 10c.

Robins, Hallet R.—*Flotation at the Calaveras Copper—A Simple Flow-Sheet.* [Costs, transportation and the ore body are described, besides the flotation system. No table concentration is employed at all].—M. & S. P. Nov. 25 1916; p 769; pp 5*; 20c.

Rose, Hugh. — *Metallurgical Experiments at Santa Gertrudis Mill, Pachuca, Mexico.* [Abst. from A. I. M. E. Bull. Flotation and electrolytic regeneration of cyanide are discussed].—E. & M. J. Aug. 5 1916; p 263; pp 2*; 25c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.

Sherwood, C. F.—*New Flotation Plant of the Prince Consolidated Co., Nevada.*—S. L. Mg. Rev. Aug. 30 1916; p 17; pp 1*; 25c.

Schwarz, A.—*Interesting Points in the U. S. District Court Flotation Decision.* [Correspondence].—Met. & Chem. Engg. Nov. 15 1916; p 553; pp 1¾; 35c.

Scott, W. A.—*Mining and Milling at Robinson, Colorado.* [Describes the mines and plant of the Progress Co. Flotation is used in the mill].—Mg. World Nov. 18 1916; p 865; pp 1¼*; 10c.

Scott, W. A.—*Operations at Battle Mountain, Nevada.*—Mg. World Aug. 19 1916; p 237; pp 2*; 10c.

Scott, W. A.—*The Old Dominion Copper Co.'s Operations, Arizona.* [The questions of hoisting, mine waters and concentration by flotation are dealt with].—Mg. World July 8 1916; p 43; pp 2¾*; 10c.

Shellshear, W.—*Flotation at the Mt. Morgan Mine, Queensland, Australia.* [A paper read before the Aust. Inst. of Mg. Eng. Operations are described though tests are given more consideration].—Mg. World Oct. 28 1916; p 741; pp 3; 10c.

Smith, R. W.—*Flotation of Flour Gold.* [Gravity concentration failed with this lead-zinc-silver-gold ore. Flotation of slimes and treating the coarse portion by gravity concentration and electrostatic separation gave results].—E. & M. J. July 1 1916; p 25; pp 2¼*; 25c.

Smith, H. H.—*The Theory of Flotation.* [Treats on laboratory experiments

on flotation phenomenon].—M. & S. P. July 1 1916; p 16; pp 3½*; 20c.

Snyder, B. M.—*Launder Flotation Machine.* [A pneumatic machine consisting of a series of short flat launders placed side by side].—E. & M. J. Dec. 16 1916; p 1060; pp 1¾; 25c.

Stander, Henricus J.—*Advancements and Present Status of Preferential Flotation.* [The separating of different metals in the same ore by flotation may be done by roasting, use of chemicals and controlling flotation].—Mg. World Nov. 18 1916; p 861; pp 3½; 10c.

Stander, H. J.—*Alaska Has One Up-to-Date Flotation Plant—the Kennecott.* [A description of the plant and the results which have been obtained].—Mg. World Nov. 11 1916; p 822; pp 1¼; 10c.

Stander, Henricus J.—*Flotation.* [A paper read before the American Mg. Cong., being a general review of flotation, its scope and where it is now being found applicable].—Mg. World Nov. 25 1916; p 910; pp 1; 10c.

Stander, H. J.—*The Flotation Process.* [A text with subjects in logical sequence for the student and others. Various methods are described in detail, methods of testing, costs, practice, etc., are dealt with separately].—Mining World Co.; book; pp 175*; $3.

Stander, H. J.—*The Function of Oil and Acid in Flotation.* [Describes tests and theory, bringing out the principles underlying flotation].—Mg. World Aug. 19 1916; p 317; pp 3¼*; 10c.

Whitaker, W. A.; Belchic, George; Neal, Roy; Van Velzer, H. L.—*Flotation Experiments on a Joplin Tailing.* [The results from using a number of different oils are tabulated and discussed. Testing was done with 400-gm. samples].—Met. & Chem. Engg. Aug. 1 1916; p 131; pp 7; 35c.

Wright, W. H.—*Flotation Experiments, Department of Research and Testing, Colorado School of Mines.* [Tables and curves showing the results of tests made on a lead-zinc-gold-silver-copper ore with many different oils].—Colo. School of Mines Qt'ly April 1916; p 1; pp 25*; 35c.

——— *A New Flotation Machine.* [An account of the recent patent to Eberenz and Brown].—Mg. World Aug. 26 1916; p 365; pp ¾*; 10c.

——— *A New Flotation Oil and a New Source of Flotative Agents.* [Discussion of papers by Maxwell Adams and G. H. Clevenger].—Bull. A. I. M. E. Nov. 1916; p 1897; pp 3; 35c.

——— *A 50-Ton Flotation Plant at the Keystone, Arizona.*—Mg. World Aug. 19 1916; p 339; 100 w; 10c.

——— *A New Flotation Machine.* [Describes the recently patented machine of G. B. Eberenz and J. J. Brown, Cripple Creek].—Mg. World Aug. 26 1916; p 365; pp ¾*; 10c.

——— *Butte & Superior Oil Flotation Plant.*—Mg. World Sept. 2 1916; p 407; 125 w; 10c.

——— *Calaveras Copper Co.'s Flotation Additions.*—Mg. World Aug. 26 1916; p 383; 100 w; 10c.

——— *Callow Machines at the Buffalo Mines Co., Ontario.*—Mg. World Sept. 16 1916; p 523; 170 w; 10c.

——— *Concentration and Flotation of Lead Ores in Southeast Missouri.* [Editorial correspondence]. — Met. & Chem. Engg. July 15 1916; p 93; pp 3; 30c.

——— *Crushing and Grinding Machinery.* [Various types are discussed and advantages of steel composition is mentioned].—E. & M. J. July 1 1916; p 60; pp 4¼; 25c.

——— *Field's Flotation Machines in Arizona.* [On the use of these machines at the plant of the Keystone Con. Co.].—Mg. World Nov. 18 1916; p 866; pp ½; 10c.

——— *Flotation.* [A discussion of the subject before the A. I. M. E. at the Arizona meeting, 1916].—M. & S. P. Oct. 28 1916; p 633; pp 6½; 20c.

——— *Flotation at Mount Morgan, Australia.* [Abst. from the proceedings of the Aust. Inst. of Mg. Eng. Experimental work and the method as finally adopted].—E. & M. J. Oct. 21 1916; p 755; pp 2; 25c.

——— *Flotation at the Copper Queen, Arizona.*—Mg. World July 1 1916; p 25; 300 w; 10c.

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——— *Flotation at the Goldfield Consolidated.*—Mg. World Aug. 26 1916; p 388; 150 w; 10c.

——— *Flotation of Minerals.*—Mg. World July 15 1916; p 102; pp ½*; 10c.

——— *Francis Automatic Pulp Sampler.* [Abst. from the Bull, of the Inst. of Mg. & Met.].—E. & M. J. Sept. 2 1916; p 427; pp

——— *Goldfield Consolidated's Flotation Process.*—Mg. World July 15 1916; p 119; 90 w; 10c.

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——— *Inspiration, History of Its Flotation Process.* [Discussion of a paper by Rudolph Gahl].—Bull. A. I. M. E. Nov. 1916; p 1879; pp 18; 35c.

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——— *Kollberg-Kraut Flotation Machine.*—Mg. World July 22 1916; p 156; pp 200 w; 10c.

——— *Minerals Separation, Ltd., vs. James M. Hyde.* [An unofficial copy of the Supreme Court's decision favoring the Minerals Separation, Ltd.].—E. & M. J. Dec. 16 1916; p 1068; pp 2¾; 25c.

——— *Minerals Separation Wins Supreme Court Decision Against Hyde.* [Official account of the Supreme Court's findings and decision in the case].—Mg. World Dec. 23 1916; p 1065; pp 3½; 10c. E. & M. J. Dec. 23; p 1107; pp 1¼; 25c.

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——— *Treating Zinc-Lead Tailings in Utah.* [Flotation is used for this work]. —Mg. World Sept. 2 1916; p 408; pp ¾*; 10c.

——— *Wilmington Decision in Miami Flotation Suit.* [A report on the proceedings and evidence given in the case]. —Met. & Chem. Engg. Oct. 15 1916; p 441; pp 7; 35c. Mg. World Oct. 14, 1916; p 667; pp 1½; 10c.

CONCENTRATING: SORTING, SIZING, WASHING

Aichino, Giovanni.—*Tungsteno.* [On the concentration and treatment of tungsten ores].—Ind. Chim. Min. & Met. Sept. 10 1916; p 273; pp 5; 35c.

Andrews, E. C.—*Molybdenite: Its Occurrence and Treatment in New South Wales.* [Abst. from Bulletin No. 23 of the N. S. W. Department of Mines].—Mg. & Engg. Rev. Aug. 5 1916; p 286; pp 2½; 35c.

Ball, Lionel C.—*Mount Cannindah Copper Mine, Australia.* [The history by years, geology, concentrating and smelting methods are taken up in detail with production figures].—Queen. Gov't Mg. Jnl. July 15 1916; p 318; pp 6*; 35c.

Bancroft, Holland.—*The Bolivian Tin Industry.* [A paper read before the Pan-American Sci. Congress. Reviews the market conditions, production and prices, with information on methods of mining, milling and smelting].—M. & S. P. July 22 1916; p 119; pp 7*; 20c.

Bell, Robert N.—*Rich Gold Ore Found in Idaho.* [Reviews the deposits and recent findings in the Atlanta district.—E. & M. J. Oct. 28, 1916; p 783; pp 2¾; 25c.

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Brinsmade, Robert B.—*Two Washington Mining Districts.* [The districts are known as Metaline Falls and Bald Mountain. Zinc, lead, copper and gold are found, with some silver. The various properties and their activities are spoken of briefly].—M. & S. P. Nov. 18 1916; p 743; pp 2½*; 20c.

Burch, Kenyon.—*Mine and Mill Plant of the Inspiration Consolidated Copper Co., Arizona.* [A complete description of plant equipment and operations from underground pockets to the finished concentrate].—Bull. A. I. M. E. Sept. 1916; p 1467; pp 33*; 35c. E. & M. J. Sept. 9 1916; p 457; pp 3½*; 25c.

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Fleck, Herman.—*A Treatise on Molybdenum.* [An account of its mineralogy and places of occurrence is followed by

a description of general methods of concentrating and smelting the ores. Uses of the metal are given].—Colo. School of Mines Qt'ly July 1916; p 22; pp 11; 35c.

Fleck, Herman.—*Metallurgical Treatment of Molybdenum Ores.* [Abstract of an article in the Colorado School of Mines Qt'ly, dealing in a general way with molybdenum, its concentration, thermic refining and marketing].—Mg. World Dec. 9 1916; p 994; pp 1¼; 10c.

Gahl, Rudolph.—*Operations and Methods in Use at the Inspiration Property, Arizona.* [A flow sheet of the mill, with considerable statistical data on the distribution of power, milling and flotation work].—Mg. World Nov. 11 1916; p 825; pp 3*; 10c.

Grider, R. L.—*Concentration and Smelting of Vanadium Ore.* [A flow sheet and description with results obtained from lead-vanadate ores in New Mexico].—M. & S. P. Sept. 9 1916; p 389; pp 2½*; 20c.

Grossberg, Alexander.—*Separating Wolframite from Tin in Bolivia.* [Details of the operations are given]. E. & M. J. July 15 1916; p 139; pp ¾; 25c.

Gudgeon, C. W.—*Gold Scheelite Ore in New Zealand.* [Abst. from the bulletin of the Aust. I. M. E. The deposits and methods of concentration are described].—M. & S. P. July 22 1916; p 136; pp 1*; 20c.

Gudgeon, C. W.—*Milling Scheelite-Gold Ores.* [Abst. from a paper read before the Aust. Inst. of M. E. Flow sheets and costs are given, with description].—E. & M. J. Aug. 19 1916; p 346; pp 2*; 25c.

Gudgeon, C. W.—*The Scheelitz Gold Mines of Otago, New Zealand.* [Several properties are described. In each the ore body, milling process and milling and mining costs are dealt with].—Proc. Aus. Inst. M. E. No. 21 1916; p 37; pp 14*; 65c.

Hewett, D. F.—*Some Manganese Mines in Virginia and Maryland.* [On the geology, mineralogy and occurrence of the ores and methods of milling and mining at several mines].—U. S. G. S. Bull. 640-C; pp 35*.

Howard, L. O.—*Copper Metallurgy at Garfield, Uath.* [Describes crushing, concentration, flotation and smelting as regards equipment and operations].—M. & S. P. July 8 1916; p 54; pp 3½; 20.

Jobke, August F.—*Improved Magnetic Separator.* [A description of the author's improvement in magnetic separators. It is brought out that inertia of the particle causes it to pass the magnetic zone].—E. & M. J. Nov. 4 1916; p 817; pp 3*; 25c.

Leslie, E. H.—*Tungsten in the Boulder District, Colorado.* [Speaks considerable of milling practice].—M. & S. P. Sept. 2 1916; p 353; pp 3*; 20c.

Lilburne, A. S.—*The Milling of Gold Ores.* [A general discussion regarding the general practices followed in Australia in the milling of gold ores].—Mg. & Engg. Rev. Nov. 6 1916; p 33; pp 1¾; 35c.

Loomis, Albert G.; Schlundt, Herman.—*Some Experiments on the Concentration of Radium in Carnotite Ores.* [A general description of processes, with details].—Jnl. Ind. & Engg. Chem. Nov. 1916; p 990; pp 6; 60c.

McCombie, J.—*The Milling of Gold Ores.* [Practical hints on various phases of the process].—Mg. & Engg. Rev. Oct. 5 1916; p 8; pp 1¼; 35c.

Miller, Benjamin Leroy; Singewald, J. T.—*The Gold Mines of Brazil.* [The two most noted mines are described. The power question, mining and refining of the ore are dealt with].—E. & M. J. July 29 1916; p 207; pp 5*; 25c.

Miller, Benjamin L.; Singewald, Joseph T., Jr.—*The Huayni-Potosi Bismuth-Tin Mines in Bolivia.* [Other minerals occur, though these are the principal ones. Mining, milling and operations and conditions in the district in general are reviewed].—E. & M. J. Dec. 16 1916; p 1065; pp 3*; 25c.

Neal, Walter.—*The Manganese and Silver Problem.* [Notes on investigations made to find a satisfactory method for treating silver-manganese ores]. — Jnl. Chem., Met. & Mg. Soc. Aug. 1916; p 9; pp 9½; 35c.

Palmer, L. A.—*The Yellow Pine District, Nev.* [Describes the district, its geology and nature of the ore deposits found there. The systems of mining and milling are then reviewed and some details given].—E. & M. J. July 15 1916; p 123; pp 3*; 25c.

Palmer, Leroy A.—*Some Zinc-Lead Mills of California and Nevada.* [Descriptions of some mills and a review of the general practice].—Met. & Chem. Engg. Aug. 15 1916; p 203; pp 2*; 35c.

Parker, S. M.—*Plant of the Babylonia Gold Mines, Nicaragua.* [Detailed description of the cyanide plant, which uses pneumatic stamps, and the results obtained at the plant in the various steps of the process].—M. & S. P. Dec. 23 1916; p 911; pp 4*; 20c.

Parmelee, H. C.—*Recent Developments in Zinc Concentration Practice in the Joplin District, Missouri.* [Details of results on the jigging and table methods

now used. The possibilities of flotation are also reviewed].—Met. & Chem. Engg. Sept. 15 1916; p 319; pp 2¾; 35c.

Phalen, W. C.—*The Conservation of Phosphate Rock in Tennessee.* [On the geology, nature and genesis of the deposits and methods of stripping and mining the deposits, with notes on production].—Res. of Tenn. Oct. 1916; p 193; pp 24*.

Plummer, W. L. — *Successful Dry Placer Operations at Plomosa, Arizona.* [Speaks of early operations and the present methods of dry crushing and concentrating. Tables using air instead of water are used].—Mg. World July 1 1916; p 1; pp 3*; 10c.

Reid, J. H.—*Sundown Tin and Copper Mine, Ballandean, Queensland, Australia.* [On the geology of the deposit, working of the mine and concentrating of the ores].—Queen. Govt. Mg. Jnl. June 15 1916; p 260; pp 1¾*; 35c.

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Robertson, A. J.—*Tungsten-Molybdenum Ore Concentration.* [Abst. of an article in a bulletin of the Geol. Surv. of West Australia].—E. & M. J. July 15 1916; p 126; pp 1¾; 25c.

Robinson, Heath M.—*The Ozokerite Field in Central Utah.* [Abst. from a U. S. G. S. bulletin. Genesis, properties, production, concentration, etc., are considered].—Mg. World Sept. 16 1916; p 497; pp 1¾*; 10c.

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Scott, W. A.—*Commonwealth Mine and Mill, Pearce, Arizona.* [Gives details on operations and description of methods used].—Mg. World July 29 1916; p 187; pp 1½*; 10c.

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Scott, W. A.—*Operations at Battle Mountain, Nevada.*—Mg. World Aug. 19 1916; p 327; pp 2*; 10c.

Scott, W. A.—*Operations in the Tintic District, Utah.* [Describes the district and its operations in general and then gives separate descriptions of the operations and methods of some of the companies].—Mg. World Sept. 30 1916; p 583; pp 1¾; 10c.

Scott, W. A.—*Operations of the Magma Copper Co., Superior, Arizona.* [Gives a brief detailed description of the mine, crushing and concentration].—Mg. World July 1 1916; p 9; pp 1¼*; 10c.

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Shellshear, W.—*Flotation of Gold and Copper Ores at Mount Morgan Mine, Queensland, Australia.* [Abstract of a paper read before the Aust. Inst. of Mg. Eng. The testing of different oils and different methods of concentration are told of].—Mg. World Dec. 2 1916; p 947; pp 1½; 10c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*Silver-Tin Mining in Bolivia.* [Old stope filling is being taken out, chloridized, leached and then concentrated for the tin residue].—E. & M. J. Sept. 23 1916; p 533; pp 3*; 25c.

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Sohnlein, M. G. F.—*Combination Pulp Classifier.* [A paper to be read before the A. I. M. E. The machine was designed because neither mechanical nor hydraulic classification of tin ores in Bolivia were satisfactory].—E. & M. J. July 22 1916; p 182; pp 1*; 25c.

Taggart, Arthur F.—*The Reclamation of Brass Ashes.* [Methods of concentration are given in detail, with results of tests].—A. I. of Metals Adv. Paper No. 5; pp 12*; 35c.

Vivian, Arthur C.—*Barytes Mining in Georgia.* [Describes the geology of the deposits, methods of prospecting, washing and concentration and the leaching method of refining].—E. & M. J. Dec. 23 1916; p 1083; pp 2¼*; 25c.

Watts, A. S.— *The Feldspar of New England and North Appalachian States.* [Goes into the lithology of feldspar rocks in general and gives nature of deposits by states. Methods of testing for quality and concentration of rock are given].—U. S. Bur. of Mines Bull. 92; pp 181*; 35c.

Wittich, L. L.—*Exploitation of Arkansas Zinc.* [Speaks of the nature of the deposits, the treating of sludge ore and recent mill construction].—E. & M. J. Aug. 12 1916; p 295; pp 2½*; 25c.

Wolf, H. J.; Barbour, P. P.—*The Boulder County Tungsten District, Colorado.* [Reviews the operations and conditions in the district. The principal companies are named, milling practice is described and a schedule of prices for tungsten ore is given].—E. & M. J. July 22 1916; p 165; pp 4¼*; 25c.

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McCombie, J.—*The Milling of Gold Ores.* [Practical hints on various phases of the process].—Mg. & Engg. Rev. Oct. 5 1916; p 8; pp 1¼; 35c.

Macdonald, William. — *Absorption of Gold by Plates.* [Speaks of the absorption of gold by copper amalgamating plates].—M. & S. P. Dec. 16 1916; p 869; pp 1½; 20c.

Morse, E. C.—*Electrolytic Precipitation.* [Gives details of equipment and methods used in operating and testing a combination cyanide and amalgamation system as regards depositing the gold and silver with electricity].—M. & S. P. Oct. 28 1916; p 622; pp 2¾*; 20c.

Purington, C. W.; Smith, R. E.—*Winter Sluicing at the Lenskoi Gold Mines, Siberia.* [Describes the methods and plant used for handling the frozen gravel by thawing and treating at once. Mining, construction and other operating costs are given].—Mg. Mag. Sept. 1916; p 143; pp 9*; 50c.

Scott, W. A. — *El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and

mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Smith, Howard D.—*Gold Saving on Dredges.* [Results are tabulated and drawings of jigs, etc., used in saving the gold from the dredged gravel are shown].—M. & S. P. Aug. 5 1916; p 202; pp 2¼*; 20c.

CYANIDING

Allingham, John.—*Treating Amalgamation Tailings with Cyanide.*—E. & M. J. Sept. 30 1916; p 591; pp 1; 25c.

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Bradley, George.—*Crushing and Grinding.* [The use of various kinds of crushing and grinding machinery at present is discussed as noted from results now being obtained in various mills of the world].—Jnl. Chem. Met. & Mg. Soc. of S. Afr. Sept. 1916; p 39; pp 2¼; 50c.

Bryan, R. R.—*From Precipitate to Bullion.* [A description of the handling of gold from the time it is taken from the zinc-boxes till it is refined gold, which has passed through the furnace].—M. & S. P. Dec. 9 1916; p. 834; pp 2½*; 20c.

Carpenter, Jay A.—*Ore Treatment at the West End, Tonopah, Nevada.* [Gives some costs and discusses in detail the results of operations rather than the methods].—M. & S. P. Aug. 5 1916; p 197; pp 1½; 20c.

Clevenger, G. H.—*Electrolytic Precipitation from Cyanide Solutions.* [A paper read before the American Electrochemical Soc.].—E. & M. J. Sept. 30 1916; p 579; pp 3½*; 25c.

Clevenger, G. H.; Morgan, Harry.—*Atmospheric Decomposition of Cyanide Solutions.* [Detailed results, tabulated data, description and curves relating to the loss of cyanide resulting from the atmosphere].—M. & S. P. Sept. 16 1916; p 413; pp 12*; 20c.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine, with respect to their production, activities, profits and costs].—T. & N. O. Commission; Toronto; Report; pp 71*.

Cook, Paul R.—*Cyaniding Clayey Ore at the Buckhorn Gold Mine, Nevada.* [Crushing, cyaniding, and details of mining and milling costs per ton are considered].—Bull. A. I. M. E. Sept. 1916; p 1555; pp 9*; 35c.

Daman, Arthur C.—*The Nevada Wonder Mill.* [Describes a 150-ton cyanide process, where 10 tons per man per day are handled. The distribution of electric power is contained in tables].—E. & M. J. Nov. 25 1916; p 927*; pp 2*; 25c.

Dunning, C. H.—*The Big Pine Cyanide Mill, Arizona.* [An 80-ton mill making 90% extraction at $1.37 per ton. Lead, silver and gold, with no copper or zinc, makes up the ore].—E. & M. J. Dec. 16 1916; p 1043; pp 1¾*; 25c.

Eames, Luther B.—*Countercurrent Decantation.* [This article is also in the Bulletin of the Canadian Mg. Inst. The results of many tests are plotted into curves, showing the effect of many of the variables in the process on its efficiency].—A. I. M. E. Bull. Dec. 1916; p 2087; pp 15*; 35c.

Edmands, H. R.—*Some Notes on the Effect of Lead Salts and of Varying Degree of Alkalinity on the Solvent Power of Cyanide Solution for Gold.* [The results of tests are tabulated and described].—Jnl. Chamber of Mines West Aust. April 29 1916; p 63; pp 8; 75c.

Edmands, H. R.—*Some Notes on the Effect of Lead Salts and of Varying Degree of Alkalinity on the Solvent Power of Cyanide Solution for Gold.* [Gives the results of some tests made].—Monthly Jnl. Chamber of Mines West Aust. June 30 1916; p 108; pp 4½; 35c.

Gabelein, Paul W.—*Air Lifts at a Cyanide Plant.* [From the E. & M. J. describing this type of installation at the Baker Mines Co., Oregon].—Comp. Air. Aug. 1916; p 8075; pp 1¼*; 20c.

Gaebelein, P. W.—*Cyaniding Copper-Bearing Ores.* [On operations at the Baker Mines Co., Cornucopia, Ore.].—E. & M. J. July 25 1916; p 22; pp 1¼*; 25c.

Howry, H. M.—*A New Method of Expressing Protective Alkalinity.* [The chemistry of the same is gone into and a chart reproduced]. E. & M. J. July 15 1916; p 139; pp ¾*; 25c.

Lilburne, A. S.—*The Milling of Gold Ores.* [A general discussion regarding the general practices followed in Australia in the milling of gold ores].—Mg. & Engg. Rev. Nov. 6 1916; p 33; pp 1¾; 35c.

McCombie, J.—*The Milling of Gold Ores.* [Practical hints on various phases

of the process].—Mg. & Engg. Rev. Oct. 5 1916; p 8; pp 1¼; 35c.

MacDonald, B.—*Counter-Migration of Pulp and Solution in Cyanidation and Acid Leaching.* [Abst. from Met. & Chem. Engg. A detailed description of a general hypothetical case].—Mg. World July 1 1916; p 5; pp 1½; 10c.

Miller, Benjamin Leroy; Singewald, J. T.—*The Gold Mines of Brazil.* [The two most noted mines are described. The power question, mining and refining of the ore are dealt with].—E. & M. J. July 29 1916; p 207; pp 5*; 25c.

Morgan, Harry J.; Ralston, Oliver C. —*Electrolytic Zinc-Dust.* [A paper read before the American Electrochem. Soc. on the electrolytical deposition of zinc from solution which would serve the cyanide process].—M. & S. P. Nov. 25 1916; p 779; pp 2; 20c.

Morse, E. C.—*Electrolytic Precipitation.* [Gives details of equipment and methods used in operating and testing a combination cyanide and amalgamation system as regards depositing the gold and silver with electricity].—M. & S. P. Oct. 28 1916; p 622; pp 2¾*; 20c.

Neal, Walter.—*The Manganese and Silver Problem.* [Notes on investigations made to find a satisfactory method for treating silver-manganese ores]. — Jnl. Chem. Met. & Mg. Soc. Aug. 1916; p 9; pp 9½; 35c.

O'Brien, C.—*Cyanidation at the Comacaran Mines, Salvador.* [Correspondence].—M. & S. P. July 1 1916; p 6; pp 1½; 20c.

Parker, S. M.—*Plant of the Babylonia Gold Mines, Nicaragua.* [Detailed description of the cyanide plant, which uses pneumatic stamps, and the results obtained at the plant in the various steps of the process].—M. & S. P. Dec. 23 1916; p 911; pp 4*; 20c.

Power, Danvers F.—*Precipitation of Gold and Silver on Zinc Dust.* [A talk on the use of different forms of zinc for precipitation].—Mg. & Engg. Rev. Oct. 5 1916; p 10; pp 1½; 35c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.

Rose, Hugh. — *Metallurgical Experiments at Santa Gertrudis Mills, Pachuca, Mexico.* [Abst. from A. I. M. E. Bull. Flotation and electrolytic regeneration of cyanide are discussed].—E. & M. J. Aug. 5 1916; p 263; pp 2*; 25c.

Rose, Hugh.—*Santa Gertrudis Mill, Pachuca, Mexico.* [Abst. from A. I. M. E. Bull. All-sliming process is used and details of construction, operation and equipment are given].—E. & M. J. Aug. 5 1916; p 247; pp 6*; 25c.

Scott, W. A.—*Commonwealth Mine and Mill, Pearce, Arizona.* [Gives details on operations and descriptions of methods used].—Mg. World July 29 1916; p 187; pp 1½*; 10c.

Scott, W. A. — *El Dorado Canyon—Mining, Milling and Development.* [The geology and operations of the mines and mills of several of the companies in the district are given].—Mg. World Dec. 16 1916; p 1023; pp 3¾*; 10c.

Shaw, Edmund N.—*Discrepancies in Cyanidation.* [Speaks of discrepancies from theft, leakage, waste, estimation of tonnage, sampling and assaying]. M. & S. P. July 15 1916; p 92; pp 2¾; 20c.

Spaulding, C. F.—*Continuous Counter Current Agitation and Decantation.* [A mill constructed by the author is described besides others. Drawings are shown of plans and sections].—Mg. World Oct. 28 1916; p 3¼*; 10c.

Thomson, Herbert G.—*Construction and Operation of the Nevada Packard Mill.* [A cyanide plant treating ore in which the principal mineral is cerargyrite].—M. & S. P. Sept. 9 1916; p 377; pp 8*; 20c.

White, H. A.—*The Manganese Silver Problem.* [Discussion of a paper by W. Neal on why low extraction only can be obtained in extracting silver in the presence of manganese].—Jnl. Chem. Met. & Mg. Soc. of S. Afr. Sept. 1916; p 39; pp 2¼; 50c.

——— *Decomposition of Cyanide.* [A general talk on the subject].—M. & S. P. Sept. 16 1916; p 407; pp 1; 20c.

——— *Four Stages of Cyanidation Combined in One.* [Describes a machine which accomplishes the four operations of cyaniding, filtering, clarifying and precipitation].—Mg. World Sept. 2 1916; p 413; pp 1*; 10c.

——— *Mining and Milling at the Santa Gertrudis, Mexico.* [The cyanide process is used here and the text is a discussion of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2197; pp 3; 35c.

——— *The Influence of Silver Contents on Treatment of Gold Residues.* [From the W. A. Chamber of Mines Jnl., in which the results of tests made by the Great Boulder Perseverance Gold Co. are given and show that it is easier to dissolve the gold when the silver content is low].—Mg. & Engg. Rev. Nov. 6 1916; p 35; pp 1; 35c.

BRIQUETTING

Anderson, R. J.—*Metallurgical Disposal of Flotation Concentrates.* [On methods and results obtained in the breaking up and dewatering of the froth. The concentrates are smelted both direct and briquetted].—Mg. World July 8 1916; p 57; pp 2½; 10c.

Frey, W. P.—*Modern Practice in Fuel Briquetting.* [Describes a plant operating successfully and using petroleum residuum for a binder or cementing material].—Coal Age Dec. 9 1916; p 960; pp 3¾*; 20c.

Stillman, A. L.—*Coal Briquettes—Fuel of Future.* [A review of the past and present use of briquetted coal].—C. Tr. Bull. Oct. 16 1916; p 33; pp 2; 25c.

CHLORINATION

Addicks, Lawrence.—*Possibilities in the Wet Treatment of Copper Concentrates.* [The method tested and described here consists of roasting and then leaching].—Bull. A. I. M. E. Sept. 1916; p 1565; pp 9*; 35c.

Foote, Frederick W.—*Estimating Construction Costs.* [The present status of estimating, with examples from practice based on the ratio of labor and materials entering into the work].—E. & M. J. Nov. 11 1916; p 857; pp 3¼; 25c

Neal, Walter.—*The Manganese and Silver Problem.* [Notes on investigations made to find a satisfactory method for treating silver-manganese ores. — Jnl. Chem. Met. & Mg. Soc. Aug. 1916; p 9; pp 9½; 35c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*Silver-Tin Mining in Bolivia.* [Old stope filling is being taken out, chloridized, leached and then concentrated for the tin residue].—E. & M. J. Sept. 23 1916; p 533; pp 3*; 25c.

Stander, H. J.—*The Flotation Process.* [A text with subjects in logical sequence for the student and others. Various methods are described in detail, methods of testing, costs, practice, etc., are dealt with separately].—Mining World Co.; book; pp 175*; $3.

———*Chlorination Aided by Actinic Light.* [Speaks of chlorination with respect to hydro-carbons and other petroleum products].—Mg. World Sept. 16 1916; p 506; pp 1*; 10c.

MILLING COSTS

Blickenderfer, F. C.—*A Comparative Test of the Marathon, Chilean and Hardinge Mills.* [Tests made at the Detroit Copper Co.'s plant, Morenci, Ariz.].—Bull. A. I. M. E. Aug. 1916; p 1333; pp 16*; 35c.

Carpenter, Jay A.—*Ore Treatment at the West End, Tonopah, Nevada.* [Gives some costs and discusses in detail the results of operations rather than the methods].—M. & S. P. Aug. 5 1916; p 197; pp 1½; 20c.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine, with respect to their production, activities, profits and costs].—T. & N. O. Commission; Toronto; Report; pp 71*.

Cook, Paul R.—*Cyaniding Clayey Ore at the Buckhorn Gold Mine, Nevada.* [Crushing, cyaniding, and details of mining and milling costs per ton are considered].—Bull. A. I. M. E. Sept. 1916; p 1555; pp 9*; 35c.

Crowley, John A.—*The Gronwall-Dixon Electric Furnace.* [A paper read before the American Foundrymen's Assn. Deals with the construction of the furnace, its operation and gives drawing and detailed costs of producing steel with the same].—I. Tr. Rev. Sept. 21 1916; p 571; pp 2½*; 25c.

Dunning, C. H.—*The Big Pine Cyanide Mill, Arizona.* [An 80-ton mill making 90% extraction at $1.37 per ton. Lead, silver and gold, with no copper or zinc, makes up the ore].—E. & M. J. Dec. 16 1916; p 1043; pp 1¾*; 25c.

Eames, Luther B.—*Countercurrent Decantation.* [This article is also in the Bulletin of the Canadian Mg. Inst. The results of many tests are plotted into curves, showing the effect of many of the variables in the process on its efficiency].—A. I. M. E. Bull. Dec. 1916; p 2087; pp 15*; 35c.

Gilbert, J.—*Costs and Profits of an Up-to-Date Spelter Works.* [A practical consideration of the subject and operations connected therewith].—Mg. Jnl. July 15 1916; p 496; pp 1¼; 35c.

Gudgeon, C. W.—*Milling Scheelite-Gold Ores.* [Abst. from a paper read before the Aust. Inst. of M. E. Flow sheets and costs are given with description].—E. & M. J. Aug. 19 1916; p 346; pp 2*; 25c.

Gudgeon, C. W.—*The Scheelite Gold Mines of Otago, New Zealand.* [Several properties are described. In each the ore body, milling process and milling and mining costs are dealt with].—Proc. Aus. Inst. M. E. No. 21 1916; p 37; pp 14*; 65c.

Handy, R. S.—*Bunker Hill & Sullivan*

Milling Data. [Flow sheets and drawings, with brief description of operations and detailed cost sheet are dealt with].—E. & M. J. July 1 1916; p 35; pp 2¼*; 25c.

Johnson, J. E., Jr.—*Commercial Considerations Concerning the Blast Furnace.* [Includes location, construction, costs, size and rate of driving the furnace, limitations to fuel economy and the dry blast].—Met. & Chem. Engg. Sept. 1 1916; p 235; pp 9½*; 35c.

Magnus, B.—*Blast vs. Reverberatory Furnace.* [The advantages of the blast over the reverberatory furnace, as noted at Mount Morgan, Australia].—E. & M. J. Oct. 7 1916; p 668; pp 1½; 25c.

McDonald, P. B. — *Mining Around Lovelock, Nevada.* [Costs and accounts of the silver properties in the district, with some information on their production is given. The principal companies are Rochester and Seven Troughs Coalition].—M. & S. P. July 1 1916; p 14; pp 2*; 20c.

Parker, S. M.—*Plant of the Babylonia Gold Mines, Nicaragua.* [Detailed description of the cyanide plant, which uses pneumatic stamps, and the results obtained at the plant in the various steps of the process].—M. & S. P. Dec. 23 1916; p 911; pp 4*; 20c.

Robins, Hallet R.—*Flotation at the Calaveras Copper—A Simple Flow-Sheet.* [Costs, transportation and the ore body are described, besides the flotation system. No table concentration is employed at all].—M. & S. P. Nov. 25 1916; p 769; pp 5*; 20c.

Scott, Herbert K.—*Manganese Ores of the Bukowina, Austria.* [A concise but complete description of the country, the ores, geology, methods of handling and preparing and costs of the same].—Iron & Steel Inst. Adv. Copy 5; pp 20*; 50c.

Shellshear, W.—*Flotation of Gold and Copper Ores at Mount Morgan Mine, Queensland, Australia.* [Abstract of a paper read before the Aust. Inst. of Mg. Eng. The testing of different oils and different methods of concentration are told of].—Mg. World Dec. 2 1916; p 947; pp 1½; 10c.

Spilman, C. F.—*Tom Reed Gold Mines Property, Arizona.* [A general description of the mine workings and formation with details is given].—Mg. World Dec. 23 1916; p 1073; pp 1½*; 10c.

Stannard, O. J.—*Chemical Methods of Extraction.* [Deals with the chemistry and brief description of thermic, electro and hydro metallurgical processes. A discussion of costs is also given].—Mg. Mag. July 1916; p 15; pp 5; 50c.

Thomson, Herbert G.—*Construction and Operation of the Nevada Packard Mill.* [A cyanide plant treating ore in which the principal mineral is cerargyrite].—M. & S. P. Sept. 9 1916; p 377; pp 8*; 20c.

Thum, E. E.—*Cost Accounting in the Construction and Operation of a Copper Smelter.* [From experience at the Anaconda Copper Co.'s plant].—Met. & Chem. Engg. July 15 1916; p 96; pp 4¾; 30c.

Trautschold, Reginald.—*The Economics of Material Handling in Manufacturing Plants.* [Treats on the cost of belt conveying. Curves are reproduced].—Engg. Mag. Sept. 1916; p 734; pp 13*; 35c.

Turnbull, J. M.—*Relations Between Custom Smelters and Small Mine Owners.* [Abst. of an address to the Vancouver Chamber of Mines. Deals with the ways in which the ore is purchased by the smelters].—Mg. World July 8 1916: p 47; pp 2¾; 10c.

Wilson, Alfred W. G.—*Report on the Production of Spelter in Canada in* 1916. [Considerable miscellaneous information relative to zinc mining and smelting is given, besides production of the metal. Labor, mining and smelting costs are also given in some detail].—Canada Dept. of Mines, Mines Branch Report 428; pp 60.

——— *Britannia Mining and Smelting Co., Ltd., Howe Sound, B. C.* [Reprint of a company balance sheet and report closed Jan. 1 1916].—Canadian Mg. Jnl. July 1 1916; p 323; pp 3¼; 35c.

——— *Canadian Mining Corporation.* [Cost and other details of operation].—E. & M. J. Aug. 19 1916; p 348; pp 1¼; 25c.

——— *Consolidation of the Treadwell Mines, Alaska.* [Operating costs, production, description of the company's holdings, etc., and items of financial interest are given].—M. & S. P. Aug. 26 1916; p 307; pp 7*; 20c.

——— *Mount Morgan Mine and Works, Australia.* [Describes the sintering and converting plant equipment and operations. Also the electric power plant using turbines].—Mg. & Engg. Rev. Aug. 5 1916; p 278; pp 6¾*; 35c.

——— *Operating Costs at the Liberty Bell Mill.*—E. & M. J. July 1 1916; p 3; pp ½; 25c.

——— *Stamp Milling at Alaska Treadwell.* [A detailed cost sheet of operations].—E. & M. J. July 1 1916; p 46; pp ½; 25c.

——— *Winona Copper-Leaching Test Plant.* [The Slater process is used. A

5-ton plant using hydrometallurgy and electrometallurgy is described and operating costs are given].—E. & M. J. Nov. 25 1916; p 929; pp 1½; 25c.

MILL MISCELLANY

Avery, Paul W.—*The Importance of Efficient Settling of Slime.* [Tables and curves showing the results of tests are reproduced and discussion of the results made].—M. & S. P. Nov. 18 1916; p 738; pp 4¼*; 20c.

Cole, Arthur A.—*The Mining Industry in that Part of Northern Ontario Served by the T. & N. O. Railway.* [Covers the camps of Cobalt and Porcupine, with respect to their production, activities, profits and costs].—T. & N. O. Commission; Toronto; Report; pp 71*.

Clark, Walter C.—*Electricity at the Bunker Hill & Sullivan Mines, Idaho.* [On the equipment and use of electricity in the mills, rock house, for pumping, hoisting, haulage and signaling].—Jnl. Elect. Power & Gas Dec. 23 1916; p 483; pp 3¼*; 35c.

Dewell, Henry D.—*Timber Framing.* [Various methods of splicing and descriptions of different types of timber trusses are given].—West. Engg. Dec. 1916; p 455; pp 7*; 25c.

Fulton, Charles H.—*The Buying and Selling of Ores and Metallurgical Products.* [Methods of sampling and the different ways in which ores are settled for and penalized are explained].—U. S. Bur. of Mines Tech. Paper 83; pp 42; 15c.

Labbe, Charles. — *The Wrong Mill.* [Tells of experience with poorly designed mills].—E. & M. J. July 1 1916; p 23; pp 1; 25c.

Robertson, J. A. T.—*An Engineer's Travels in Western China.* [A geographic review of the province of Szechuan, China, as related to the mining industries of the province, which are in their primitive stages still].—Mg. Mag. Nov. 1916; p 267; pp 13*; 50c.

Scobey, Fred C.—*The Flow of Water in Wood-Stave Pipe.* [Tables, curves and text on the practical theory and formulas used in connection with wood piping and a discussion of the adaptability of wood pipe].—U. S. Dept. of Agr. Bull. 376; pp 96*.

Wiard, E. S.—*Choosing the Mill Site.* [A discussion of factors governing the selection of the site].—E. & M. J. July 1 1916; p 1; pp 3*; 25c.

Young, George J.—*The Selection of a Method for Ore Treatment.* [On methods of testing and investigating new ores for refining treatment].—Met. & Chem. Engg. Sept. 15 1916; p 297; pp 2¾; 35c.

——— *Conversion Table for the Valuation of Ores, Minerals and Metals.* [A table for converting various English money values into the corresponding U. S. currency value].—Mg. Mag. Sept. 1916; p 152; pp 4; 50c.

——— *Description of the Laboratories of the Mines Branch of the Department of Mines, Ottawa, Ontario.* [Laboratories for investigating fuels, milling and metallurgical processes, ceramics, metallography, etc., are described in detail].—Canada Mines Branch Bull. 13; pp 111*.

CHEMISTRY AND ASSAYING.

CHAPTER XVII.

CHEMISTRY

Blakeley, A. G.—*Chemistry in Coal Mining.* [Some details and speaks of lines along which the coal mine chemist could work].—Coal Age Aug. 19 1916; p 296; pp 6½; 20c.

Blum, William. — *Determination of Aluminum as Oxide.* [A general review of methods is made and followed by a complete description of this method with the results obtained by its use].—U. S. Bur. of Stand. Sci. Paper 286; pp 20*; 20c.

Bonillas, Y. S.; Tenney, J. B.; Feuchère, L.—*Geology of the Warren Mining District, Arizona.* [A complete review of the geology, mineralogy and nature of the ore deposits of the district].—Bull. A. I. M. E. Sept. 1916; p 1397; pp 69*; 35c.

Browning, P. R.; Simpson, G. S.; Porter, L. E.—*On the Qualitative Separation and Detection of Tellurium and Arsenic, Iron and Thallium, and Zirconium and Titanium.* [Details of procedure for this chemical method are given].—American Jnl. of Sci. Aug. 1916; p 106; pp 3; 60c.

Browning, P. E.; Spencer, S. R.—*On the Separation of Caesium and Rubidium by the Fractional Crystallization of the Aluminum and Iron Alums and Its Application to the Extraction of These Elements from Their Mineral Sources.*—American Jnl. of Sci. Sept. 1916; p 2½; 35c.

Broderick, T. M.—*Some Experiments Bearing on the Secondary Enrichment of Mercury Deposits.* [Deals mostly with the geochemistry of this process of genesis].—Eco. Geol. Nov. 1916; p 645; pp 7; 60c.

Clennell, J. E.—*Estimating Metallic Aluminum in Aluminum Dust.* [Deals mostly with gasometric methods].—E. & M. J. Aug. 12 1916; p 309; pp 1½; 25c.

Covitz, Philip.—*The Determination of Nickel in Iron Ores.* [A gravimetric chemical method for use with complex ores in which precipitation is brought about by the addition of ammonium hydroxide and dimethyl glyoxime].—Met. & Chem. Engg. Dec. 15 1916; p 682; pp 1¼; 35c.

Diekman, P.—*Chemistry of Portland Cement.* [Abst. from the Jnl. of the American Soc. of Mechanical Engineers]. —Met. & Chem. Engg. July 1 1916; p 41; pp 1½; 30c.

Drakeley, T. J.—*The Examination of Coal and Coke.* [Deals with methods for determining the sulphur in coal].—Sci. & Art. of Mg. Nov. 4 1916; p 148; pp 2*; 35c.

Drushel, W. A.; Elston, C. M.—*On the Quantitative Estimation of Small Quantities of Sulphide Sulphur.* [The work is done with the inner tube of a Liebig condenser].—American Jnl. of Sci. Aug. 1916; p 155; pp 4; 60c.

Dunstan, B.—*Queensland Mineral Deposits.* [Deals with the geology, chemistry and metallurgy of magnesite, dolomite and magnesium salts].—Queen. Govt. Mg. Jnl. Nov. 15 1916; p 529; pp 4½; 35c.

Engle, W. D.; Gustavson, R. G.—*New Volumetric Method for the Determination of Cobalt.* [The method permits of the presence of zinc, cobalt, etc.].—Jnl. Ind. & Engg. Chem. Oct. 1916; p 901; pp 1¼; 60c.

French, Harold.—*Manufacture of Chromates from Chromite.* [This, as here described, is attained by the reaction of various chemicals in solution].—M. & S. P. Dec. 9 1916; p 845; pp 1¼; 20c.

Hallett, R. L.—*The Volumetric Determination of Tin.* [Discusses different volumetric methods, pointing out the advantages and disadvantages of each].—Jnl. Soc. Chem. Ind. Nov. 15 1916; p 1087; pp 3; 75c.

Hartman, M. L.—*Chemistry and Metallurgy of Tungsten.* [Abst. from Pahasapa Quarterly. Describes the hydrofluoric acid, fusion and aqua regia methods of analysis, all of which are gravimetric].—Mg. World July 8 1916; p 55; pp 1½; 10c.

Hartmann, M. L.— *The Chemistry of Manganese.* [Describes the chemical properties and nature of manganese and its chemical activity and combination with other chemicals].—Pahasapa Dec. 1916; p 18; pp 6; 35c.

Heath, R. Franklin.—*Outlines for the Determination of Zinc.* [Gives the details of procedure for several volumetric, gravimetric and electrolytic methods for the determination of zinc].—Mg. World Dec. 16 1916; p 1027; pp 1¾; 10c.

Heath, George L.—*The Analysis of Copper and Its Ores and Alloys.* [Methods of analysis and assay for different

products containing copper].—McGraw-Hill; book; pp 292*; $3.

Hering, Carl.—*Inadequacy and Inconsistency of Some Common Chemical Terms.* [Deals mostly with the inconsistent and misleading use of the term valence].—Met. & Chem. Engg. Dec. 1 1916; p 649; pp 1½; 35c.

Hesse, Bernhard, C.—*Revision of Our Chemical Statistics.* [Lists of chemicals produced are given and it is stated that U. S. needs to give information about a greater number of these products].—Met. & Chem. Engg. Aug. 1 1916; p 143; pp 6; 35c.

Hicks, W. B.—*Simple Tests for Potash.* —M. & S. P. Aug. 5 1916; p 207; pp 1½; 20c.

Hoffman, E. J.—*The Nitration of Toluene.* [On the formation of nitrates of toluene of different valences from toluene as a byproduct from water gas].—U. S. Bur. of Mines Tech. Paper 146; pp 31; 15c.

Howland, H. P.—*Calculations with Reference to the Use of Carbon in Modern American Blast Furnaces.* [Discussion giving results of thermic tests and chemical reactions].—Bull. A. I. M. E. July 1916; p 1245; pp 7; 35c.

Howry, H. W.—*A New Method of Expressing Protective Alkalinity.* [The chemistry of the same is gone into and a chart reproduced].—E. & M. J. July 15 1916; p 139; pp ¾*; 25c.

Irinyi, Arnold. — *Die Physikalisch-Chemischen Vorgänge bei Verdampfung von Heizöl mit Besonderer Rücksicht auf die Verwendung von Oelfeuerungen in Giesserei-Oefen.* [On the physical and chemical properties and changes of oil burned in metallurgical furnaces].—Petroleum Oct. 7 1914; p 9; pp 5½; 60c.

Jensen, E. B.—*Analysis of Mineral Waters by Volumetric Methods.* [In detail describes several methods of procedure].—Mg. Cong. Jnl. Oct. 1916; p 75; pp 24*; 65c.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [On the properties as varied by the carbon content].—Met. & Chem. Eng. Nov. 1 1916; p 7½*; 35c.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [Deals with the effects of nickel, titanium and vanadium on these irons with respect to physical and metographical properties].—Met. & Chem. Engg. Dec. 1 1916; p 642; pp 5*; 35c.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [Separate brief reviews on the effects of other metals and non-metals on the properties of iron].—Met. & Chem. Engg. Dec. 15 1916; p 682; pp 1¼; 35c.

Kelley, G. L.; Conant, J. B.—*The Use of Diphenyln Glyoxime as an Indicator in the Volumetric Determination of Nickel by Frevert's Method.* [Gives a description of procedure for the method and the use of the indicator].—Jnl. Ind. & Engg. Chem. Sept. 1916; p 804; pp 3; 60c.

Layng, H. R.—*Determination of Antimony.* [Methods of procedure for a wet chemical method].—M. & S. P. July 8 1916; p 57; pp 1½; 20c.

Mabery, C. F.—*The Relations of Chemical Composition of Petroleum to Its Genesis and Geologic Occurrence.* [A detailed discussion of the subject from a practical and theoretical view point].—Eco. Geol. Sept. 1916; p 511; pp 17; 60c.

Matheson, A. M.—*Notes on the Chemical Assay of Tin Ores.* [Discussion of the chemical and fire assay of pyritic tin ores show that mill losses can not be estimated by vanning and the fire method].—Proc. Aus. Inst. M. E. No. 21 1916; p 1; pp 7; 65c; Mg. World Sept. 9 1916; p 451; pp 2¼; 10c; Mg. & Engg. Rev. June 5 1916; p 221; pp 2½; 35c.

Mixter, W. G.—*The Thermochemistry of Silicon and Heat of Combination of Silica with Water.* [Experiments of the author and comparison of them with others' results].—American Jnl. of Sci. Aug. 1916; p 125; pp 7½*; 60c.

Morgan, G. T.—*Some Chemical Aspects of the Peat Problem.* [Reprint from the Irish Technical Jnl. Treats on the using of this resource for making gas and ammonia products].—Jnl. of American Peat Soc. July 1916; p 141; pp 10*.

Parr, S. W.—*Chemical Study of Illinois Coals.* [Gives the analysis and discussion regarding the same for a number of different samples].—Ills. Geol. Surv. Bull. 3; pp 86*.

Parr, S. W.; McFarland, D. F.—*The Analysis of Complex Alloys of Chromium, Copper, Nickel Type.* — Trans. American Inst. of Metals Vol. IX; p 218; pp 6; 35c.

Phalen, W. C.; Hicks, W. B.—*Phosphate Rock in* 1915. [On the market, production, methods of making soluble phosphates and chemical tests for the mineral].—Min. Res. of U. S. II:18; pp 18.

Phalen, W. C.; Hicks, W. B.—*Potash Salts in* 1915. [Chemical qualitative tests and methods of analysis are also given. The economic geology and occurrence of this mineral are reviewed with an account

of the progress made in developing the resource in this country].—Min. Res. of U. S. II:12; pp 39.

Pierce, Edwin G.—*The Determination of Sulphuric Anhydrid in Portland Cement Analysis.* [Complete description of a method].—Chem. Eng. & Mfg. Aug. 1916; p 62; pp 1¾*; 30c.

Pogue, Joseph E.—*The Chemistry of Minerals.* [Discusses the impurities of minerals and their effects on the mineral].—E. & M. J. Aug. 5 1916; p 4¾; 25c.

Porter, J. B.—*An Investigation of the Coals of Canada.* [Tests conducted at McGill Univ. with reference to the economic properties of the coal].—Canada Dept. of Mines Form No. 338; pp 194*.

Pulsifer, H. B.—*The Determination of Sulphur in Iron and Steel.* [The many methods used in the past and today are briefly described and discussed and the bibliography of 285 articles on the subject is given].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1115; pp 8½*; 60c.

Schroeder, J.—*The Solubility of Leucite in Sulphurous Acid.* [Details of the chemistry and methods applied thereto].—Jnl. Ind. & Engg. Chem. Sept. 1916; p 779; pp 1; 60c.

Sidener, C. F.; Pettijohn, Earl.—*Notes on the Determination of Aluminum.* [A discussion on the determination of aluminum as an oxide being precipitated with ammonium hydroxide].—Jnl. Ind. & Engg. Chem. Aug. 1916; p 714; pp 2; 60c.

Stannard, O. J.—*Chemical Methods of Extraction.* [Deals with the chemistry and brief description of thermic, electro and hydro metallurgical processes. A discussion of costs is also given].—Mg. Mag. July 1916; p 15; pp 5; 50c.

Thornton, W. M., Jr.—*The Separation of Thorium from Iron with the Aid of the Ammonium Salt of Nitrosophenylhydroxylamine.*—American Jnl. of Sci. Aug. 1916; p 151; pp 4*; 60c.

Turner, W. A.—*The Separation of Vanadium from Phosphoric and Arsenic Acid and from Uranium.* [A description of a chemical method].—American Jnl. of Sci. Aug. 1916; p 109; pp 2; 60c.

Van Name, R. G.; Hill, D. U.—*On the Rates of Solution of Metals in Ferric Salts and in Chromic Acid.* [A discussion and description of experimental work. The nature of the different experiments and results obtained are given].—American Jnl. of Sci. Oct. 1916; p 301; pp 3½*; 60c.

Von Bacho, F.—*Quantitative Analysis of Antimony Trisulphide and the Products Obtained from It by Roasting.*—Jnl. Soc. Chem. Ind. 1916 No. 110; p 496; pp 2; 75c.

Watson, T. L.—*Zircon-Bearing Pegmatites in Virginia.* [The rock occurs in North Carolina and the chemical analysis of the rock is taken up in detail].—Bull. A. I. M. E. July 1916; p 1237; pp 7*; 35c.

Wells, Arthur E.—*Laboratory Investigations Concerning the Reduction of Barium Sulphate to Barium Sulphide.* [Published by permission of the Bureau of Mines. Details of methods used in the investigation are given, with results obtained].—Jnl. Ind. & Engg. Chem. Sept. 1916; p 770; pp 7½*; 60c.

Westling, H.; Andersen, Carl.—*Analysis of Molybdenum Ores.* [A volumetric method employing lead acetate for titration and tannic acid as an indicator. The main object is to precipitate the molybdenum with hexavalency].—M. & S. P. Dec. 23 1916; p 917; pp 1½; 20c.

White, H. A.—*The Manganese Silver Problem.* [Discussion of a paper by W. Neal on why low extraction only can be obtained in extracting silver in the presence of manganese].—Jnl. Chem. Met. & Mg. Soc. of S. Afr. Sept. 1916; p 39; pp 2¼; 50c.

Young, C. M.—*The Chemistry of Mine Water.* [Brings out the chemistry of methods used to reduce the corrosive action of the water and it is pointed out that products from the water might be made to pay for the treatment].—Coal Age Oct. 28 1916; p 704; pp 4*; 20c.

Young, S. W.; Moore, Neil Preston.—*Laboratory Studies on Secondary Sulphide Ore Enrichment.* [Confined to copper sulphides and the generation of hydrogen sulphide].—Eco. Geol. June 1916; p 349; pp 17; 60c.

Zies, E. G.; Allen, E. T.; Merwin, H. E.—*Some Reactions Involved in Secondary Copper Sulphide Enrichment.* [Full details regarding laboratory and field investigations].—Economic Geol. Aug. 1916; p 407; pp 97*; 60c.

——— *Description of the Laboratories of the Mines Branch of the Department of Mines, Ottawa, Ontario.* [Laboratories for investigating fuels, milling and metallurgical processes, ceramics, metallography, etc., are described in detail].—Canada Mines Branch Bull. 13; pp 111*.

ELECTROCHEMISTRY

Buck, H. W.—*Comparisons Between Steam and Water Power.* [Discussion of the two forms of power and their appli-

cation].—Mg. World Aug. 26 1916; p 373; pp 1½; 10c.

Hawley, F. O.—*Determination of Copper in Low Grade Ores.*]An electrolytic method for rapid determination].—E. & M. J. Aug. 12 1916; p 307; pp 2; 25c.

Heath, George L.—*The Analysis of Copper and Its Ores and Alloys.* [Methods of analysis and asay for different products containing copper].—McGraw-Hill; book; pp 292*; $3.

Kelley, G. L.; Conant, J. B.—*Electrometric Titration of Vanadium.* [The titration is made with ferrous sulphate on an acid solution containing the vanadium as a vanadate].—Jnl. Amer. Chem. Soc. No. 38; 1916; pp 341; pp 11.

Kelley, G. L.; Conant, J. B.—*Determination of Chromium and Vanadium in Steel by Electrometric Titration.*—Jnl. Ind. Eng. Chem. 1916; No. 8; p 719; pp 5.

Kelley, G. L.; Conant, J. B.—*The Determination of Chromium and Vanadium in Steel by Electrometric Titration.*—Jnl. Ind. & Engg. Chem. Aug. 1916; p 719; pp 4¼; 60c.

Silsbee, Francis B.—*A Study of the Inductance of Four-Terminal Resistance Standards.* [Laboratory methods for measuring resistance of less than 1 ohm].—U. S. Bur. of Stand. Sci. Paper No. 281; pp 48*; 25c.

Thompson, M. De Kay; Thompson, N. J.—*The Electrolytic Oxidation of Sulphurous Acid.* Speaks of this phenomena with respect to the electrolytic recovery of copper direct from its ores].—Met. & Chem. Engg. Dec. 15 1916; p 677; pp 2*; 35c.

ASSAYING AND ANALYSIS

Assaying

Blum, William. — *Determination of Aluminum as Oxide.* [A general review of methods is made and followed by a complete description of this method with the results obtained by its use].—U. S. Bur. of Stand. Sci. Paper 286; pp 20*; 20c.

Clevenger, G. H.—*Pouring Assay Melts Upon a Flat Plate.* [Compares this method of pouring the contents from the crucible with that of pouring it in a conical mold].—E. & M. J. July 15 1916; p 141; pp 1½*; 25c.

Gudgeon, C. W.—*The Scheelite Gold Mines of Otago, New Zealand.* [Several properties are described. In each the ore body, milling process and milling and mining costs are dealt with].—Proc. Aus. Inst. M. E. No. 21 1916; p 37; pp 14*; 65c.

Heath, George L.—*The Analysis of Copper and Its Ores and Alloys.* [Methods of analysis and assay for different products containing copper].—McGraw-Hill; book; pp 292*; $3.

King, J. T.—*Pulp and Metallic Assays.* [Abstract from the Jnl. of Am. Chem. Soc. Derives a formula for computing the value per ton from the assay of metallics which carry the ore's values and is separated from the pulp].—E. & M. J. Nov. 4 1916; p 827; pp ¾; 25c.

Mann, Horace T.; Clayton, C. Y.—*Cupellation Losses in Assaying.* [Contains considerable tabulated data and curves].—Mo. School of Mines Bull. II:3; pp 60*.

Matheson, A. M.—*Notes on the Chemical Assay of Tin Ores.* [Discussion of the chemical and fire assay of pyritic tin ores show that mill losses can not be estimated by vanning and the fire method].—Proc. Aus. Inst. M. E. No. 21 1916; p 1; pp 7; 65c; Mg. & Engg. Rev. June 5 1916; p 221; pp 2½; 35c; Mg. World Sept. 9 1916; p 451; pp 2¼; 10c.

Pierce, Edwin G.—*The Determination of Sulphuric Anhydrid in Portland Cement Analysis.* [Complete description of a method].—Chem. Eng. & Mfg. Aug. 1916; p 62; pp 1¾*; 30c.

Sale, A. J.—*Drilling and Analysis of Copper Ores.* [A general discussion of errors made from taking averages of churn-drill hole samples. Also speaks of the sulpho-cyanide assay of copper].—E. & M. J. July 8 1916; p 87; pp 3¼; 25c.

Scott, W. A.—*The Tonopah Extension Mines in Nevada.*—Mg. World Nov. 11 1916; p 831; pp 1; 10c.

Shaw, Edmund N.—*Discrepancies in Cyanidation.* [Speaks of discrepancies from theft, leakage, waste, estimation of tonnage, sampling and assaying].—M. & S. P. July 15 1916; p 92; pp 2¾; 20c.

Taggart, Arthur F.—*The Reclacamation of Brass Ashes.* [Methods of concentration are given in detail with results of tests].—A. I. of Metals Adv. Paper No. 5; pp 12*; 35c.

Analysis

Anrep, Aleph.—*Investigation of the Peat Bogs and Peat Industry of Canada,* 1913-1914. [Each bog-area is described separately and grouped by provinces in which they are located. Notes on foreign peat production are given].—Canada Dept. of Mines, Mines Branch Bull. 11; pp 185*.

Browning, P. E.; Simpson, G. S.; Porter, L. E.—*On the Qualitative Separation*

and Detection of Tellurium and Arsenic, Iron and Thallium, and Zirconium and Titanium. [Details of procedure for this chemical method are given].—American Jnl. of Sci. Aug. 1916; p 106; pp 3; 60c.

Burrell, G. A.; Seibert, F. M.—*Gas Analysis as an Aid in Fighting Mine Fires.* [Discusses the change in air during a mine fire and the effects of gas on the fire and its origin. Methods of sampling and analyzing are given].—U. S. Bur. of Mines Tech. Paper 13; pp 16*.

Clennell, J. E.—*Estimating Metallic Aluminum in Aluminum Dust.* [Deals mostly with gasometric methods].—E. & M. J. Aug. 12 1916; p 309; pp 1½; 25c.

Covitz, Philip.—*The Determination of Nickel in Iron Ores.* [A gravimetric chemical method for use with complex ores in which precipitation is brought about by the addition of ammonium hydroxide and dimethyl glyoxime].—Met. & Chem. Engg. Dec. 15 1916; p 682; pp 1¼; 35c.

Drakeley, T. J.—*The Examination of Coal and Coke.* [Deals with methods for determining the sulphur in coal].—Sci. & Art of Mg. Nov. 4 1916; p 148; pp 2; 35c.

Drushel, W. A.; Elston, C. M.—*On the Quantitative Estimation of Small Quantities of Sulphide Sulphur.* [The work is done with the inner tube of a Liebig condenser].—American Jnl. of Sci. Aug. 1916; p 155; pp 4; 60c.

Engle, W. D.; Gustavson, R. G.—*New Volumetric Method for the Determination of Cobalt.* [The method permits of the presence of zinc, cobalt, etc.].—Jnl. Ind. & Engg. Chem. Oct. 1916; p 901; pp 1¼; 60c.

Graham, Thomas.—*The Coal Creek Collieries, British Columbia.* [Abstract of a paper read before the Mine Inspectors' Inst., in which special stress is given analysis of the air in the mine workings].—Coal Age Dec. 9 1916; p 964; pp 2¾*; 20c.

Hallett, R. L.—*The Volumetric Determination of Tin.* [Discusses different volumetric methods, pointing out the advantages and disadvantages of each].—Jnl. Soc. Chem. Ind. Nov. 15 1916; p 1087; pp 3; 75c.

Harger, F. D.—*Gas Analysis Applied to Brick Kilns.* [With the results of analysis and tests, utilization of waste heat and kiln economy are dealt with].—B. & C. Rec. Nov. 7 1916; p 803; pp 3; 35c.

Hartman, M. L.—*Chemistry and Metallurgy of Tungsten.* [Abst. from Pahasapa Quarterly. Describes the hydrofluoric acid fusion and aqua regia methods of analysis, all of which are gravimetric].—Mg. World July 8 1916; p 55; pp 1½; 10c.

Hawley, F. O.—*Determination of Copper in Low Grade Ores.* [An electrolytic method for rapid determination].—E. & M. J. Aug. 12 1916; p 307; pp 2; 25c.

Heath, R. Franklin.—*Outlines for the Determination of Zinc.* [Gives the details of procedure for several volumetric, gravimetric and electrolytic methods for the determination of zinc].—Mg. World Dec. 16 1916; p 1027; pp 1¾; 10c.

Jensen, E. B.—*Analysis of Mineral Waters by Volumetric Methods.* [In detail describes several methods of procedure].—Mg. Cong. Jnl. Oct. 1916; p 75; pp 24*; 65c.

Kelley, G. L.; Conant, J. B.—*Electrometric Titration of Vanadium.* [The titration is made with ferrous sulphate on an acid solution containing the vanadium as a vanadate].—Jnl. Amer. Chem. Soc. No. 38 1916; p 341; pp 11.

Kelley, G. L.; Conant, J. B.—*The Determination of Chromium and Vanadium in Steel by Electrometric Titration.*—Jnl. Ind. & Engg. Chem. Aug. 1916; p 719; pp 4¼; 60c.

Kelley, G. L.; Conant, J. B.—*The Use of Diphenyl Glyoxime as an Indicator in the Volumetric Determination of Nickel by Frevert's Method.* [Gives a description of procedure for the method and the use of the indicator].—Jnl. Ind. & Engg. Chem. Sept. 1916; p 804; pp 3; 60c.

Layng, H. R.—*Determination of Antimony.* [Method of procedure for a wet chemical method].—M. & S. P. July 8 1916; p 57; pp 1½; 20c.

Leaming, T. H.; Schlundt, Herman; Underwood, Julius.—*Comparison of the Ionization Currents Due to Equal Quantities of Radium Emanation in Different Types of Electroscopes.* [A method by which small quantities of radium may be determined]. — American Electrochem. Soc. Adv. Paper 2; p 13; pp 14; 35c.

Lisitzin, Fr.—*Russian Peat Industry.* [Gives the results of the analyses of many samples].—Jnl. of American Peat Soc. July 1916; p 138; pp 3.

Matheson, A. M.—*Notes on the Chemical Assay of Tin Ores.* [From the proceedings of the Aust. Inst. of Mg. Eng. Details of procedure for wet methods and fire assay are given].—Mg. & Engg. Rev. June 5 1916; p 221; pp 2½; 35c.

Parr, S. W.—*Chemical Study of Illinois Coals.* [Gives the analysis and discussion regarding the same for a number of different samples].—Ills. Geol. Surv. Bull. 3; pp 86*.

Parr, S. W.; McFarland, D. F.—*The Analysis of Complex Alloys of Chromium, Copper, Nickel Type.* — Trans. American Inst. of Metals Vol. IX; p 218; pp 6; 35c.

Phalen, W. C.; Hicks, W. B.—*Potash Salts in* 1915. [Chemical qualitative tests and methods of analysis are also given. The economic geology and occurrence of this mineral are reviewed, with an account of the progress made in developing the resource in this country].—Min. Res. of U. S. II:12; pp 39.

Pulsifer, H. B.—*The Determination of Sulphur in Iron and Steel.* [The many methods used in the past and today are briefly described and discussed and the bibliography of 285 articles on the subject is given].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1115; pp 8½*; 60c.

Ralston, O. C.—*Graphic Studies of Ultimate Analyses of Coals.* [A graphic method described in detail by which coals are classified and studied according to their chemical contents].—U. S. Bur. of Mines Tech. Paper 93; pp 41*; 20c.

Runner, J. J.—*Specific Gravity Method for Tungsten Analysis.* [Curves for use in this connection are reproduced].—M. & S. P. July 1 1916; p 11; pp 2¾*; 20c.

Sidener, C. F.; Pettijohn, Earl.—*Notes on the Determination of Aluminum.* [A discussion on the determination of aluminum as an oxide being precipitated with ammonium hydroxide].—Jnl. Ind. & Engg. Chem. Aug. 1916; p 714; pp 2; 60c.

Von Bacho, F.—*Quantitative Analysis of Antimony Trisulphide and the Products Obtained from It by Roasting.*—Jnl. Soc. Chem. Ind. 1916 No. 110; p 496; pp 2; 75c.

Waddell, J.—*The Volumetric Determination of Lead.*—Analyst No. 16 1916; p 270; pp 3; 35c.

Watson, T. L.—*Zircon-Bearing Pegmatites in Virginia.* [The rock occurs in North Carolina and the chemical analysis of the rock is taken up in detail].—Bull. A. I. M. E. July 1916; p 1237; pp 7*; 35c.

Westling, H.; Andersen, Carl.—*Analysis of Molybdenum Ores.* [A volumetric method employing lead acetate for titration and tannic acid as an indicator. The main object is to precipitate the molybdenum with hexavalency].—M. & S. P. Dec. 23 1916; p 917; pp 1½; 20c.

——— *United States Mint, Report of the Director for the Year of* 1916. [A report of the production of precious metals for 1915 and the Mint's operations to June 30, 1916].—Treasury Dept. Annual Report of Mint; pp 286.

METALLURGY.

CHAPTER XVIII.

ELECTROMETALLURGY

Addicks, Lawrence.—*An Analysis of Tank Resistance in Electrolytic Refining.* [A general discussion of the subject, with particular reference to resistance].—Met. & Chem. Engg. Nov. 15 1916; p 566; pp 5*; 35c.

Addicks, Lawrence.—*The Metal Tie-Up in Electrolytic Refining.* [A very complete description of the operation of electrolytic refining and results obtained at different stages in the process].—Met. & Chem. Engg. Sept. 15 1916; p 305; pp 8*; 35c.

Antisell, F. L.; Skowronski, S.—*Electrolytic Refining of Copper.* [Describes the electrolytic refining and method of melting the cathode copper].—Amer. Inst. of Metals Adv. Copy 20; pp 11*; 35c; E. & M. J. Nov. 11 1916; p 874; pp 2¼; 25c.

Bretherton, S. E.—*Electrolytic Practice.* [Correspondence speaking of previous penalizing for zinc in some ores and the doing away of this through the introduction of the electrolytic process developed by the Anaconda Co.].—M. & S. P. Dec. 2 1916; p 793; pp 2; 20c.

Clevenger, G. H.—*Electrolytic Precipitation from Cyanide Solutions.* [A paper read before the American Electrochemical Society].—E. & M. J. Sept. 30 1916; p 579; pp 3½*; 25c.

Crowley, John A.—*The Gronwall-Dixon Electric Furnace.* [A paper read before the American Foundrymen's Assn. Deals with the construction of the furnace, its operation and gives drawing and detailed costs of producing steel with the same].—I. Tr. Rev. Sept. 21 1916; p 571; pp 2½*; 25c.

Fischer, Sigfried, Jr. — *Contributions to the Knowledge of the Electrolysis Aqueous Solutions of Vanadium Salts.* [Gives the results of previous investigations showing the behavior of vanadium and its salts under various conditions, specially in solution as an electrolyte].—American Electrochem. Soc. Adv. Paper 9; p 119; pp 45*; 35c.

Hammond, L. D.—*The Electrodeposition of Nickel.* [Tables and description showing the chemicals used in different electrolytes are given with the current used in deposition and all the information given is specific, rather than general].—American Electrochem. Soc. Adv. Paper 12; p 201; pp 29; 35c.

Ingalls, W. R.—*Comments and Speculations on the Metallurgy of Zinc.* [A general talk on methods used and the progress being made].—E. & M. J. Oct. 7 1916; p 621; pp 3¾*; 25c.

Johnson, J. E., Jr.—*Blast Furnace Irregularities and Their Treatment.* [Tells of remedies for and discusses many things unusual in furnace operation, such as a chilled hearth].—Met. & Chem. Engg. July 15 1916; p 69; pp 8*; 30c.

Lomas, Garcia.—*Recuperacion de Humos por Precipitation Electrica.* [The recovering of fumes for electrical precipitation].—Revista Minera July 1 1916; p 317; pp 1¾; 35c.

Means, C. M.—*New Electrical Device for Detecting Gas.* [A paper read before the Coal Mining Inst. of America. The detector consists of a catalytic and non-catalytic glower side by side in glass and gauze container].—Coal Age Dec. 16 1916; p 1003; pp 1*; 20c.

Morgan, Harry J.; Ralston, Oliver C.—*Electrolytic Zinc-Dust.* [A paper read before the American Electrochem. Soc. on the electrolytical deposition of zinc from solution which would serve the cyanide process].—M. & S. P. Nov. 25 1916; p 779; pp 2; 20c; Met. & Chem. Engg. Oct. 15 1916; p 465; pp 3¼; 35c.

Morse, E. C.—*Electrolytic Precipitation.* [Gives details of equipment and methods used in operating and testing a combination cyanide and amalgamation system as regards depositing the gold and silver with electricity].—M. & S. P. Oct. 28 1916; p 622; pp 2¾*; 20c.

Parodi, Lorenzo.—*Notizie Sulla Metallurgia del Nickel Importanza del Nickel nell'odierna Metallurgia..* [Notes on the metallurgy of nickel today. Deals with the situation and methods employed in the principal producing countries].—Metallurgia Ital. May 31 1916; p 355; pp 14; $1.

Peters, Franz.—*Die Elektrometallurgie der weniger häufigen Metalle in den Jahre* 1906 *to* 1915. [On the electrometallurgy of some of the more common metals from 1906 to 1915].—Glückauf Oct. 1 1916; p 836; pp 6½; 50c.

Phalen, W. C.—*Bauxite and Aluminum in* 1915. [On the production, uses and

methods of refining].—Min. Res. of U. S. I:7; pp 16*.

Poyner, J. M. — *Centralized Power Plant.* [Speaks in general of the central power plant equipment and the transmission of the current to various points where it is used].—Coal Age Dec. 16 1916; p 1007; pp 3*; 20c.

Rawdon, Henry S.—*Notes on the Occurrence and Significance of Twinned Crystals in Electrolytic Copper.*—A. I. of Metals Adv. Paper No. 13; pp 12*; 35c; Met. & Chem. Engg. Oct. 1 1916; p 406; pp 3*; 35c.

Rickard, T. A.—*Electrolytic Refining at Trail, British Columbia.* [The five more common metals are produced here and the nuisance of sulphur fumes is entirely absent].—M. & S. P. Dec. 23 1916; p 903; pp 5*; 20c.

Rose, Hugh. — *Metallurgical Experiments at Santa Gertrudis Mill, Pachuca, Mexico.* [Abst. from A. I. M. E. Bull. Flotation and electrolytic regeneration of cyanide are discussed].—E. & M. J. Aug. 5 1916; p 263; pp 2*; 25c.

Rose, C. A.—*Metallurgical Operations at the Chile Exploration Co.* [A paper read before the Pan-American Sci. Cong. The ores are leached as sulphates and electrolytically precipitated]. — Teniente Topics Aug. 1916; p 19; pp 5*; 35c.

St. John, H. M.—*Electric Brass Melting from the Central Station Viewpoint.*—Trans. American Inst. of Metals Vol. IX; p 359; pp 9; 35c.

Sims, Clarence E.; Ralston, Oliver C.—*The Electrolytic Recovery of Lead from Brine Leaches.* [A paper read before the American Electrochemical Soc.].—Met. & Chem. Engg. Oct. 1 1916; p 410; pp 4*; 35c.

Stander, H. J.—*The Flotation Process.* [A text with subjects in logical sequence for the student and others. Various methods are described in detail, methods of testing, costs, practice, etc., are dealt with separately].—Mining World Co.; book; pp 175*; $3.

Strong, William. — *Electro-Metallurgical Uses of Surplus Power.* [On the possible uses to which the excess hydro-electric power of our western states might be put].—Jnl. Elect. Power & Gas July 15 1916; p 43; pp 3*; 35c.

Scott, W. A.—*Notes on the Park City Mines and Mills, Utah.* [Describes several operating companies' operations].—Mg. World Sept. 2 1916; p 411; pp 1¾; 10c.

Scott, W. A.—*Plant Construction of the New Cornelia Copper Co., Arizona.* [Electric power is used and the ores are refined by electrolysis and leaching].—Mg. World July 15 1916; p 89; pp 3½*; 10c.

Thompson, M. De Kay; Thompson, N. J.—*The Electrolytic Oxidation of Sulphurous Acid.* Speaks of this phenomena with respect to the electrolytic recovery of copper direct from its ores].—Met. & Chem. Engg. Dec. 15 1916; p 677; pp 2*; 35c.

Uhler, Horace S.; Browning, Philip E. —*On the Electrolysis and Purification of Gallium.* [Details of procedure are given].—Amer. Jnl. of Sci. Nov. 1916; p 389; pp 10*; 60c.

——— *Efficiency in Electrolytic Extraction.* [Describes the Greenawalt system of electrolytic extraction, patent 1,179,522].—Mg. World July 22 1916; p 147; pp 1¼*; 10c.

——— *Electric Alloy Steels Made on Tonnage Basis.* [A detailed description of the plant equipment and operation is given].—Iron Age Sept. 14 1916; p 571; pp 3¾*; 30c.

——— *French Electrolytic Process.*—Mg. World Sept. 9 1916; p 450; pp ¾; 10c.

——— *The Peugeot Process of Zinc Electrolysis.* [A complete but concise description of the method is given].—S. L. Mg. Rev. July 30 1916; p 17; pp 2¾; 25c.

——— *United States Metals Refining Co.'s Plant, Grasselli, Indiana.* [A description of the steam and electric power plants at the electrolytic lead refinery].—Pract. Eng. Aug. 1 1916; p 641; pp 4½*; 20c.

——— *Winona Copper-Leaching Test Plant.* [The Slater process is used. A 5-ton plant using hydrometallurgy and electrometallurgy is described and operating costs are given].—E. & M. J. Nov. 25 1916; p 929; pp 1½; 25c.

THERMIC METALLURGY

Addicks, Lawrence.—*Possibilities in the Wet Treatment of Copper Concentrates.* [The method tested and described here consists of roasting and then leaching].—Bull. A. I. M. E. Sept. 1916; p 1565; pp 9*; 35c; Met. & Chem. Engg. Dec. 1 1916; p 628; pp 3*; 35c.

Addicks, Lawrence.—*The Metal Tie-Up in Electrolytic Refining.* [A very complete description of the operation of electrolytic refining and results obtained at different stages in the process].—Met. & Chem. Engg. Sept. 15 1916; p 305; pp 8*; 35c.

Anderson, R. J.—*Metallurgical Disposal of Flotation Concentrates.* [Missouri School of Mines Bulletin. Treats on the breaking and dewatering of the froth and the final methods of smelting the concentrate].—Mg. World July 8 1916; p 57; pp 2¾; 10c.

Antisell, F. L.; Skowronski, S.—*Electrolytic Copper Refining.* [Abstract of a paper read before the Amer. Inst. of Metals. The process is described from the melting of blister copper into anodes to the thermic refining of the cathodes resulting from electrolysis].—E. & M. J. Nov. 11 1916; p 874; pp 2¼; 25c.

Arthur, W.—*Season Cracking and Self-Annealing of Brass.*—A. I. of Metals Adv. Paper No. 4; pp 7*; 35c.

Ball, Lionel C.—*Mount Cannindah Copper Mine, Australia.* [The history by years, geology, concentrating and smelting methods are taken up in detail with production figures].—Queen. Gov't Mg. Jnl. July 15 1916; p 318; pp 6*; 35c.

Bancroft, Holland.—*The Bolivian Tin Industry.* [A paper read before the Pan-American Sci. Congress. Reviews the market conditions, production and prices, with information on methods of mining, milling and smelting].—M. & S. P. July 22 1916; p 119; pp 7*; 20c.

Bell, Robert N.—*Rich Gold Ore Found in Idaho.* [Reviews the deposits and recent findings in the Atlanta district].—E. & M. J. Oct. 28 1916; p 783; pp 2¾; 25c.

Bocking, F. W.—*Van Buren Smelting Plant, Arkansas.* [A description of the plant and its operation, with illustrations and drawings].—E. & M. J. Oct. 7 1916; p 655; pp 7¾*; 25c.

Bradley, W. W.—*Concentration Methods for the Reduction of Quicksilver Ores.* [Work now being carried on by the California Mining Bureau].—Mg. World Aug. 26 1916; p 366; pp ¾; 10c.

Brantly, J. E.—*A Report on the Limestones and Marls of the Coastal Plain of Georgia.* [The geology of the formation and descriptions of deposits by counties. The uses and preparation of the rock are also given].—Georgia Geol. Surv. Bull. No. 21; pp 300*.

Bregman, A.—*Operating a Small Copper Blast Furnace.* [Details of furnace operation and construction which cause trouble in a small plant and methods used for getting around the same].—E. & M. J. July 22 1916; p 171; pp 4*; 25c.

Bryan, R. R.—*From Precipitate to Bullion.* [A description of the handling of gold from the time it is taken from the zinc-boxes till it is refined gold, which has passed through the furnace].—M. & S. P. Dec. 9 1916; p 834; pp 2½*; 20c.

Caesar, G. V.; Gerner, G. C.—*The Annealing Properties of Copper at Temperatures Below 500 Degrees, with Particular Reference to the Effect of Oxygen and of Silver.*—A. I. of Metals Adv. Paper No. 6; pp 43*; 35c.

Cowley, John A. — *Gronwall-Dixon Electric Melting Furnace.* [A paper read before the American Foundrymen's Assn., in which a drawing of the furnace is reproduced].—I. & C. Tr. Rev. Nov. 3 1916; p 551; pp 1*; 35c.

Cubillo, Leandro.—*La Industria Siderurgica Espanola.* [On the metallurgical industry of Spain with particular reference to the steel, iron and alloy industries].—Revista Minera Aug. 1 1916; p 365; pp 3; Aug. 8; p 377; pp 3¼; 70c.

De Lummen, Maurice V. M.—*The Roasting of Blendes.* [From an article in the Chem. Trade Jnl. & Chem. Eng., London].—E. & M. J. Oct. 21 1916; p 741; pp 1¾; 25c.

Dunstan, B.—*Queensland Mineral Deposits.* [Aluminium, its deposits, production, occurrence and uses of the metal and its derivatives and ores are among the things reviewed].—Queen. Govt. Mg. Jnl. Oct. 14 1916; p 475; pp 3½; 35c.

Dunstan, B.—*Queensland Mineral Deposits, Australia.* [Occurrence, production, values, prospects and properties by the chief Government Geologist].—Queen. Gov't Mg. Jnl. July 15 1916; p 314; pp 1¾; 35c.

Dwight, Arthur S. — *Lead-Smelting Practice in the United States.* [Advancements have been chiefly in changing the charge to the furnace].—E. & M. J. Oct. 7 1916; p 671; pp 6¾*; 25c.

Eddy, L. H.—*Sonoma Magnesite Mines, California.* [Describes the development, transportation and calcining of the ores for shipment].—E. & M. J. July 29 1916; p 225; pp 2*; 25c.

Engle, Robert H.—*The Engle Furnace for Redistilling Spelter.* [The operation and construction of the furnace is described].—E. & M. J. July 29 1916; p 213; pp 1¾*; 25c.

Feild, Alexander L.—*A Method for Measuring the Viscosity of Blast Furnace Slag at High Temperatures.* [The methods of testing and some results, with a description of the apparatus used are contained].—U. S. Bur. of Mines Tech. Paper 157; pp 29*; 15c.

Fleck, Herman.—*A Treatise on Molybdenum.* [An account of its mineralogy and places of occurrence is followed by

a description of general methods of concentrating and smelting the ores. Uses of the metal are given].—Colo. School of Mines Qt'ly July 1916; p 22; pp 11; 35c.

Fleck, Herman.—*Metallurgical Treatment of Molybdenum Ores.* [Abstract of an article in the Colorado School of Mines Qt'ly, dealing in a general way with molybdenum, its concentration, thermic refining and marketing].—Mg. World Dec. 9 1916; p 994; pp 1¼; 10c.

Flynn, F. N.—*Smelting at the Arizona Copper Co.'s Works, Arizona.* [On the details of operation and equipment].—Bull. A. I. M. E. Sept. 1916; p 1575; pp 18; 35c.

Gadd, C. J.—*Empleo de Carbon Pulverizado Para el Caldeo de los Hornos Siderurgicos.* [Abst. from the Jnl. of the Franklin Inst. on the use of powdered coal for fuel].—Revista Minera Aug. 8 1916; p 380; pp 3¾; 35c.

Gadd, C. J.—*The Use of Powdered Coal in Metallurgical Processes: A Discussion of the Principals Involved.* [A paper read before the Mining and Metallurgical Section].—Jnl. of Franklin Inst. Sept. 1916; p 323; pp 39*; 60c.

Gilbert, J.—*Costs and Profits of an Up-to-Date Spelter Works.* [A practical consideration of the subject and operations connected therewith].—Mg. Jnl. July 15 1916; p 496; pp 1¾; 35c.

Gillett, H. W.; James, G. M.—*Melting Aluminum Chips.* [Tests and methods of smelting, particularly in the electric furnace. Methods of testing and practical methods of procedure are given].—U. S. Bur. of Mines Bull. 108; pp 88; 20c.

Guess, G. A.; Lathe, F. E.—*An Investigation Into the Flowing Temperatures of Copper Mattes and of Copper-Nickel Mattes.* [A number of tests and investigations to determine the temperature at which the two mattes will flow].—Bull. A. I. M. E. June 1916; p 1067; pp 6*; 35c.

Harbord, F. W.; Hall, J. W.—*The Metallurgy of Steel.* [A complete treatise on the subject].—Charles Griffin & Co., Strand, E. C.; book; $10.

Henrich, Carl.—*The Function of Alumina in Slags.*—Bull. A. I. M. E. Nov. 1916; p 2081; pp 6; 35c.

Hill, James M.—*Platinum and Allied Metals in* 1915. [Reviews production in general, by states and foreign countries. Methods of refining and extracting from other metals is spoken of briefly].—Min. Res. of U. S. I:6; pp 19.

Howard, L. O.—*Copper Metallurgy at Garfield, Utah.* [Describes crushing, concentration, flotation and smelting as regards equipment and operation].—M. & S. P. July 8 1916; p 54; pp 3½; 20c.

Howard, L. O.—*The Basic-Lined Converter in the Southwest.* [A general review with details].—Bull. A. I. M. E. Sept. 1916; p 1539; pp 5; 35c.

Ingalls, W. R.—*Comments and Speculations on the Metallurgy of Zinc.* [A general talk on methods used and the progress being made].—E. & M. J. Oct. 7 1916; p 621; pp 3¾*; 25c.

Ingalls, W. R.—*The Donora Zinc Works, Pennsylvania.* [A description of the plant, its equipment and operation].—E. & M. J. Oct. 7 1916; p 648; pp 7*; 25c.

Irinyi, Arnold. — *Die Physikalisch-Chemischen Vorgänge bei Verdampfung von Heizöl mit Besonderer Rücksicht auf die Verwendung von Oelfeuerungen in Giesserei-Oefen.* [On the physical and chemical properties and changes of oil burned in metallurgical furnaces].—Petroleum Oct. 7 1914; p 9; pp 5½; 60c.

Laist, Frederick.—*Changes in Smelting Practice of Anaconda Copper Co.* [A review of recent progress in methods and equipment made at this smelter].—E. & M. J. Oct. 7 1916; p 635; pp 3*; 25c.

Lamb, Mark R.—*Copper Smelting at Naltagua in Central Chile.* [High prices of coke is causing a replacement of blast furnaces by reverberatory furnaces].—E. & M. J. Oct. 28 1916; p 777; pp 3½*; 25c.

Landers, W. H.—*The Smelting of Mercury Ores.* [Speaks of the general thermic methods now in common use and mentions the open field here for hydrometallurgical methods and investigation].—E. & M. J. Oct. 7 1916; p 630; pp 5*; 25c.

Lomas, Garcia.—*Recuperacion de Humos por Precipitation Electrica.* [The recovering of fumes for electrical precipitation].—Revista Minera July 1 1916; p 317; pp 1¾; 35c.

Lotti, Alfredo.—*Notizie Complementari sulla Metallurgia del Nickel in America.* [Notes on the metallurgy of nickel in America].—Metallurgia Ital. July 15 1916; p 429; pp 4; $1.

Lindau, S. Paul.—*Matte Granulation at Herculaneum, Mo.* [Method used by the St. Joseph Lead Co., Mo.].—Bull. A. I. M. E. Nov. 1916; p 2057; pp 5*; 35c.

Lomas, Garcia.—*Jucio Critico Sobre la Aplicacion del Moderno Horno Escoces a Nuestros Minerales de Plomo.* [On the application of the modern Scotch furnace and Spanish lead ores].—Revista Minera Aug. 24 1916; p 401; pp 2; 35c.

Magnus, B.—*Blast vs. Reverberatory*

Furnace. [The advantages of the blast over the reverberatory furnace as noted at Mount Morgan, Australia].—E. & M. J. Oct. 7 1916; p 668; pp 1½; 25c.

McCombie, J.—*The Milling of Gold Ores.* [Practical hints on various phases of the process].—Mg. & Engg. Rev. Oct. 5 1916; p 8; pp 1¼; 35c.

McGregor, A. G.—*Features of the New Copper Smelting Plants in Arizona.* [Treats on the transportation and sampling of the ores as well as actual furnace practice].—Bull. A. I. M. E. Aug. 1916; p 1257*; 35c.

Mixter, W. G.—*The Thermochemistry of Silicon and Heat of Combination of Silica with Water.* [Experiments of the author and comparison of them with others' results].—American Jnl. of Sci. Aug. 1916; p 125; pp 7½*; 60c.

Pannell, Ernest V.—*Recent Developments in Aluminum.* [A number of recently found properties, both thermic and electrical].—Trans. American Inst. of Metals Vol. IX; p 167; pp 27*; 35c.

Parker, S. M.—*Plant of the Babylonia Gold Mines, Nicaragua.* [Detailed description of the cyanide plant, which uses pneumatic stamps, and the results obtained at the plant in the various steps of the process].—M. & S. P. Dec. 23 1916; p 911; pp 4*; 20c.

Parodi, Lorenzo.—*Notizie Sulla Metallurgia del Nickel Importanza del Nickel nell'odierna Metallurgia.* [Notes on the metallurgy of nickel today. Deals with the situation and methods employed in the principal producing countries].—Metallurgia Ital. May 31 1916; p 355; pp 14; $1.

Pigott, Curtis. — *Blast-Furnace Slag Shells.* [Treats on the metal content of the shell left in the slag pot after a short period of cooling].—E. & M. J. Oct. 7 1916; p 626; pp 1; 25c.

Pratt, Arthur D.—*The Utilization of Waste Heat for Steam Generating Purposes.* [A paper read before the American Soc. of Mech. Eng. Speaks of the utilization of waste heat from metallurgical furnaces and describes installations of this type in general].—Met. & Chem. Engg. Dec. 15 1916; p 696; pp 11¾*; 35c.

Rickard, T. A.—*E. P. Mathewson, an All-Round Metallurgist.* [A bibliography of Mathewson's life in the form of a conversation. Most of his experience was in thermic metallurgy].—M. & S. P. Dec. 9 1916; p 837; pp 8*; 20c.

Roche, Thomas F.—*Mining and Smelting at Casapalca, Peru.* [From the West Coast Leader, describing the district and operations in general].—Mg. World Sept. 2 1916; p 409; pp 1¼; 10c.

Rose, Hugh.—*Mining and Milling Practice at Santa Gertrudis, Pachuca, Mexico.* [A complete detailed description with drawings].—Bull. A. I. M. E. Aug. 1916; p 1295; pp 38*; 35c.

Sale, A. J.—*Drilling and Analysis of Copper Ores.* [A general discussion of errors made from taking averages of churn-drill hole samples. Also speaks of the sulpho-cyanide assay of copper].—E. & M. J. July 8 1916; p 87; pp 3¼; 25c.

Samuel, J. Moore.—*Determination of Dust Losses at the Copper Queen Reduction Works.* [Methods of testing and formulas used in computation are given].—Bull. A. I. M. E. June 1916; p 1079; pp 20*; 35c.

Smeeth, W. F.—*Annual Report for the Year* 1914. [Part I takes up production and general conditions of the industry, while Part II is more of a geologic nature on several of the districts in the state].—Mysore Dept. of Mines and Geol. pp 188*; $1.75.

Stannard, O. J.—*Chemical Methods of Extraction.* [Deals with the chemistry and brief description of thermic, electro and hydro metallurgical processes. A discussion of costs is also given].—Mg. Mag. July 1916; p 15; pp 5; 50c.

Stansbie, J. H.—*Elementary Practical Metallurgy for Technical Students and Others.* [The book is meant for use in connection with laboratory study. Mechanical testing of non-ferrous metals and alloys is treated on].—P. Blakiston's Sons & Co., Philadelphia; book; pp 151*; $1.40.

Stead, J. E.—*Notes on Nickel Steel Scale and on the Reduction of Solid Nickel and Copper Oxides by Solid Iron.* [Gives the method of procedure and results obtained in experimental work].—Iron & Steel Inst. Adv. Copy 7A; pp 9*; 50c.

Thum, E. E.—*Cost Accounting in the Construction and Operation of a Copper Smelter.* [From experience at the Anaconda Copper Co.'s plant].—Met. & Chem. Engg. July 15 1916; p 96; pp 4¾; 30c.

Tournay-Hinde, A. W.—*The Flow of Air in Lead Blast Furnaces.* [A paper read before the Engg. Assn. of New South Wales. Reviews investigations made along this line in Australia].—Mg. & Engg. Rev. June 5 1916; p 229; pp 1¾; 35c; E. & M. J. Aug. 26 1916; p 392; pp 1; 25c.

Turnbull, J. M.—*Relations Between Custom Smelters and Small Mine Owners.* [Abst. of an address to the Vancouver Chamber of Mines. Deals with the

ways in which the ore is purchased by the smelters].—Mg. World July 8 1916; p 47; pp 2¾; 10c.

Vail, Richard H.—*Tuyere Connections for Copper and Lead Blast Furnaces.* [Detail drawings and descriptions for different constructions are given].—E. & M. J. Oct. 7 1916; p 639; pp 4¼*; 25c.

Walker, Edward.—*Zinc Smelting in Vertical Retorts.* [Abst. from the Mining Magazine describing operations and showing sectional views].—M. & S. P. Sept. 9 1916; p 387; pp 1¾*; 20c.

Willcox, Fred H.—*Safe Practice at Blast Furnaces.* [Shows safe and unsafe way of doing things and has notes on some first aid].—U. S. Bur. of Mines Tech. Paper 136; pp 73*; 30c.

Wilson, Alfred W. G.—*Report on the Production of Spelter in Canada in* 1916. [Considerable miscellaneous information relative to zinc mining and smelting is given, besides production of the metal. Labor, mining and smelting costs are also given in some detail].—Canada Dept. of Mines, Mines Branch Report 428; pp 60.

Wolf, Fred L.; Burr, Robert B.—*Tests of Natural Gas Fired, Brass Melting Furnaces Under Factory Operating Conditions.*—Trans. American Inst. of Metals Vol. IX; p 343; pp 24*; 35c.

——— *Copper Smelting and Refining in Australia.* [On the economic aspects of the subject].—Mg. Jnl. July 29 1916; p 522; pp 1¼; 35c.

——— *La Calcinacion de las Blendas.* [On the roasting and calcination of zinc blende ores].—Revista Minera July 8 1916; p 329; pp 1½; July 16; p 341; pp 2½; 70c.

——— *Metallurgical Plants of Arizona.* [A summary of metallurgical practice in the state and an account of the tour of the A. I. M. E.].—Met. & Chem. Engg. Aug. 15 1916; p 167; pp 4*; 35c.

——— *Mount Morgan Mine and Works, Australia.* [Describes the sintering and converting plant equipment and operations. Also the electric power plant using turbines].—Mg. & Engg. Rev. Aug. 5 1916; p 278; pp 6¾*; 35c.

——— *Notes on Copper Smelting at the United Verde Copper Co., Arizona.* [Describes operations and equipment].—Met. & Chem. Engg. Sept. 1 1916; p 251; pp 2*; 35c.

——— *Sintering Machine of a Continuous Type.* [Abst. from Iron Age. A description of P. O. Harding's machine].—M. & S. P. Aug. 19 1916; p 283; pp 1½*; 20c.

——— *Some Notes on Lead Smelting in Tooele, Utah.* [A description of the International Smelting Co.'s plant].—E. & M. J. Dec. 23 1916; p 1100; pp 1; 25c.

——— *Tin Smelting Capacity of the World.* [Gives the possible production of tin from different companies' plants and from different districts].—Mg. Jnl. Sept. 23 1916; p 645; pp 1½; 35c.

——— *The Bisulphite Process.* [Zinc sulphide is roasted to an oxide; changed to a bisulphide with sulphurous acid and leached from the foreign material].—E. & M. J. Nov. 18 1916; p 895; pp 3½; 25c.

——— *The Profits in Zinc Smelting.* [A financial discussion of the zinc smelting industry].—Mg. Jnl. July 8 1916; p 476; pp 1½; 35c.

REFRACTORIES

Dudley, Boyd, Jr.—*The Thermal Conductivity of Refractories.* [Data, tests and formulas for making computations with are given].—Amer. Electrochem. Soc. Adv. Paper 2; pp 44*; 35c.

Kelley, W. H.—*Fire Brick for the Lime Kiln.* [A talk on the uses and properties of different brick used in different plants].—National Lime Mfg. Bull. 21; pp 5; 25c.

McDowell, J. Spots.—*A Study of the Silica Refractories.* [Published by permission of the Massachusetts Inst. of Tech.].—Bull. A. I. M. E. Nov. 1916; p 1999; pp 57*; 35c.

Nesbitt, C. E.; Bell, M. L.—*How to Conduct Fire Brick Tests.* [A paper read before the American Soc. for Testing Materials].—I. Tr. Rev. July 13 1916; p 71; pp 7*; 25c; E. & M. J. Dec. 2 1916; p 967; pp ¾; 25c; Met. & Chem. Engg. Aug. 15 1916; p 205; pp 7¾*; B. & C. Rec. Aug. 15; p 312; pp 4*; Aug. 1 1916; p 221; pp 4*; 70c.

Smeeth, W. F.; Iyengar, P. S.—*Mineral Resources of Mysore, India.* [A brief account of the more important economic minerals, their occurrence and distribution, with notes on their mining and metallurgical treatment and uses].—Mysore Dept. of Mines & Geol. Bull. 7; pp 193; $1.50.

——— *Refractory Materials.* [A general discussion by the Faraday Soc., England].—I. & C. Tr. Rev. Nov. 10 1916; p 571; pp 3; Nov. 17 1916; p 606; pp 2½; 70c.

HYDROMETALLURGY

Addicks, Lawrence.—*The Wet Treatment of Copper Concentrates.* [A paper

read before the A. I. M. E. The ore is roasted and leached with sulphuric acid]. —M. & S. P. Oct. 28 1916; p 630; pp 2¾*; 20c.

Addicks, Lawrence.—*Possibilities in the Wet Treatment of Copper Concentrates.* [The method tested and described here consists of roasting and then leaching].—Bull. A. I. M. E. Sept. 1916; p 1565; pp 9*; 35c; Met. & Chem. Engg. Dec. 1 1916; p 628; pp 3*; 35c.

Bretherton, S. E.—*Electrolytic Practice.* [Correspondence speaking of previous penalizing for zinc in some ores and the doing away of this through the introduction of the electrolytic process developed by the Anaconda Co.].—M. & S. P. Dec. 2 1916; p 793; pp 2; 20c.

Fischer, Sigfried, Jr. — *Contributions to the Knowledge of the Electrolysis Aqueous Solutions of Vanadium Salts.* [Gives the results of previous investigations showing the behavior of vanadium and its salts under various conditions, specially in solution as an electrolyte].—American Electrochem. Soc. Adv. Paper 9; p 119; pp 45*; 35c.

Hammond, L. D.—*The Electrodeposition of Nickel.* [Tables and description showing the chemicals used in different electrolytes are given with the current used in deposition, and all the information given is specific rather than general]. —American Electrochem. Soc. Adv. Paper 12; p 201; pp 29; 35c.

Hill, James M.—*Platinum and Allied Metals in* 1915. [Reviews production in general, by states and foreign countries. Methods of refining and extracting from other metals is spoken of briefly].—Min. Res. of U. S. I:6; pp 19.

Landers, W. H.—*The Smelting of Mercury Ores.* [Speaks of the general thermic methods now in common use and mentions the open field here for hydrometallurgical methods and investigation]. —E. & M. J. Oct. 7 1916; p 630; pp 5*; 25c.

MacDonald, B.—*Counter-Migration of Pulp and Solution in Cyanidation and Acid Leaching.* [Abst. from Met. & Chem. Engg. A detailed description of a general hypothetical case].—Mg. World July 1 1916; p 5; pp 1½; 10c.

Morse, H. W.; Tobelmann, H. A.—*Leaching Tests at New Cornelia, Arizona.* [Different methods and the results of tests are dealt with].—Bull. A. I. M. E. Sept. 1916; p 1593; pp 18*; 35c.

Neal, Walter.—*The Manganese and Silver Problem.* [Notes on investigations made to find a satisfactory method for treating silver-manganese ores]. — Jnl. Chem. Met. & Mg. Soc. Aug. 1916; p 9; pp 9½; 35c.

Phalen, W. C.—*Bauxite and Aluminum in* 1915. [On the production, uses and methods of refining].—Min. Res. of U. S. I:7; pp 16*.

Rose, C. A.—*Metallurgical Operations at the Chile Exploration Co.* [A paper read before the Pan-American Sci. Cong. The ores are leached as sulphates and electrolytically precipitated]. — Teniente Topics Aug. 1916; p 19; pp 5*; 35c.

Scott, W. A.—*Nevada Douglas Mines and Mill.* [Describes the geology, mine workings and equipment, with more details on the crushing and leaching plants]. —Mg. World Aug. 12 1916; p 277; pp 2*; 10c.

Scott, W. A.—*Plant Construction of the New Cornelia Copper Co., Arizona.* [Electric power is used and the ores are refined by electrolysis and leaching].—Mg. World July 15 1916; p 89; pp 3½*; 10c.

Scott, W. A.—*Sulphidizing Carbonate Tailings for Treatment by Oil Flotation.* [While being agitated the crushed ore as carbonate is changed to a metallic sulphide by the addition of sodium sulphide]. —Mg. World Dec. 2 1916; p 946; pp 1; 10c.

Sims, Clarence E.; Ralston, O. C.—*The Electrolytic Recovery of Lead from Brine Leaches.* [The results of experimental work and operations with this method of procedure are given].—Amer. Electrochem. Soc. Adv. Copy 11; p 185; pp 15; 35c; Met. & Chem. Engg. Oct. 1 1916; p 410; pp 4*; 35c.

Singewald, Joseph T., Jr.; Miller, Benjamin L.—*Silver-Tin Mining in Bolivia.* [Old stope filling is being taken out, chloridized, leached and then concentrated for the tin residue].—E. & M. J. Sept. 23 1916; p 533; pp 3*; 25c.

Stannard, O. J.—*Chemical Methods of Extraction.* [Deals with the chemistry and brief description of thermic, electro and hydro metallurgical processes. A discussion of costs is also given].—Mg. Mag. July 1916; p 15; pp 5; 50c.

Vivian, Arthur C.—*Barytes Mining in Georgia.* [Describes the geology of the deposits, methods of prospecting, washing and concentration and the leaching method of refining].—E. & M. J. Dec. 23 1916; p 1083; pp 2¼*; 25c.

Yeatman, Pope.—*Mine of Chile Exploration Co., Chuquicamata, Chile.* [A paper read before the Pan-American Sci. Cong. The history, geology, reserves, power plant and testing of hydrometallurgical treatment of the ores are includ-

ed].—Teniente Topics Aug. 1916; p 1; pp 18*; 35c.

——— *Copper Leaching, New Development in.*—Mg. World Oct. 21 1916; p 706; pp 1; 10c.

——— *French Electrolytic Process.*—Mg. World Sept. 9 1916; p 450; pp ¾; 10c.

——— *Hulett Unloader as Applied to the Handling of Copper Ore.* [An excavator to handle the leached sands from the tanks at the plant of the New Cornelia Copper Co., Ariz.].—Mg. World Dec. 2 1916; p 951; pp 1*; 10c.

——— *Leaching Tests at New Cornelia Plant, Arizona.* [Discussion by members of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2151; pp 8; 35c.

——— *The Bisulphite Process.* [Zinc sulphide is roasted to an oxide; changed to a bisulphite with sulphuric acid and leached from the foreign material].—E. & M. J. Nov. 18 1916; p 895; pp 3½; 25c.

——— *The Peugeot Process of Zinc Electrolysis.* [A complete but concise description of the method is given].—S. L. Mg. Rev. July 30 1916; p 17; pp 2¾; 25c.

——— *Winona Copper-Leaching Test Plant.* [The Slater process is used. A 5-ton plant using hydrometallurgy and electrometallurgy is described and operating costs given].—E. & M. J. Nov. 25 1916; p 929; pp 1½; 25c.

METALLURGY GENERAL

Bretherton, S. E.—*Electrolytic Practice.* [Correspondence speaking of previous penalizing for zinc in some ores and the doing away of this through the introduction of the electrolytic process developed by the Anaconda Co.].—M. & S. P. Dec. 2 1916; p 793; pp 2; 20c.

Dunstan, B.—*Queensland Mineral Deposits.* [Deals with the geology, chemistry and metallurgy of magnesite, dolomite and magnesium salts].—Queen. Govt. Mg. Jnl. Nov. 15 1916; p 529; pp 4½; 35c.

Fay, Albert H.—*Accidents at Metallurgical Works in the United States.* [They are given for the greater part in tabulated form and include 1915 only].—U. S. Bur. of Mines Tech. Paper 164; pp 20; 15c.

Fulton, Charles H.—*The Buying and Selling of Ores and Metallurgical Products.* [Methods of sampling and the different ways in which ores are settled for and penalized are explained].—U. S. Bur. of Mines Tech. Paper 83; pp 42; 15c.

Gadd, C. J.—*Use of Powdered Coal in Metallurgical Processes.* [A discussion of the engineering principles involved].—Jnl. Frank. Inst. 1916; No. 182; p 323; pp 30; 35c.

Hess, Frank L.—*Magnesium in 1915.* [Though production figures are given the greater part is on the manufacture, prices, uses, history of the method of manufacture, imports and exports].—Min. Res. U. S. I:23; pp 7.

Irvin, Donald F.— *Strontium Nitrate: A New Industry.* [A flow sheet used for the refining of celestite to this product is given, besides a general review of the industry].—M. & S. P. Nov. 25 1916; p 774; pp 2¾*; 20c.

Richards, J. W.—*The Metallurgy of the Rarer Metals.* [Abst. from a paper read before the American Inst. of Chem. Eng. Discussing the importance of the future of magnesium, chromium and other metals].—Mg. World July 15 1916; p 93; pp 1¼; 10c.

Rickard, T. A.—*E. P. Mathewson, an All-Round Metallurgist.* [A bibliography of Mathewson's life in the form of a conversation. Most of his experience was in thermic metallurgy].—M. & S. P. Dec. 9 1916; p 857; pp 8*; 20c.

Turnbull, J. M.—*Relations Between Custom Smelters and Small Mine Owners.* [Excerpts from an address to the Vancouver Chamber of Mines. Treats in general on the buying of ores by a custom smelter].—Mg. World July 8 1916; p 47; pp 2¾; 10c.

Wilson, A. W. G.—*On the Possibility of Producing Copper in Canada.* [Published by permission of the Mines Branch, Ottawa, Ont. The deposits, reserves and refining of copper in Canada are discussed].—Canadian Mg. Jnl. Nov. 15 1916; p 529; pp 6½; 35c.

——— *British Association for the Advancement of Science.* [A report of the Fuel Economy Committee dealing with the use, consumption and conservation of coal in different industries]. — Coll'y Guard. Sept. 15 1916; p 499; pp 4*. I. C. Tr. Rev. Sept. 15; p 299; pp 5*; 35c.

——— *Description of the Laboratories of the Mines Branch of the Department of Mines, Ottawa, Ontario.* [Laboratories for investigating fuels, milling and metallurgical processes, ceramics, metallography, etc., are described in detail].—Canada Mines Branch Bull. 13; pp 111*.

——— *Separating Metals from Flue and Bag House Dust.* [Abst. of a patent description of the process].—Mg. World Oct. 14 1916; p 661; pp 1½; 10c.

POWER AND MACHINERY.*

CHAPTER XIX.

ELECTRICITY

Balliet, Letson.—*Underground Electric Mine Lighting.* [Discusses this subject from the point of view that electric lights underground make possible more efficient operation].—Mg. World Dec. 23 1916; p 1072; pp 1; 10c.

Brown, J. F. K.—*Imagination Applied to Mining.* [A review of the possible future as regards the transmission of electric power, pumping, etc. The cases are purely hypothetical].—Coal Age July 22 1916; p 142; pp 2¾; 20c.

Buck, A. M.—*Some Graphical Solutions of Electric Railway Problems.* [Formulas, description and curves on various problems].—Univ. of Ill. Bull. July 24 1916; pp 36*.

Burch, H. Kenyon; Whiting, M. A.—*Automatic Electric Hoist at the Inspiration Mine, Arizona.* [Abstract of a paper read before the A. I. M. E. The hoist is driven by motors which are automatically driven].—M. & S. P. Dec. 2 1916; p 801; pp 5¾*; 20c.

Campbell, Edward D.—*The Influence of Heat Treatment on the Thermo-Electric Properties and Specific Resistance of Carbon Steels.* [The results and nature of the tests are described and 8 curves are reproduced, showing the results of these and other tests].—Iron & Steel Inst. Adv. Copy 2; pp 18*; 50c.

Capron, W. C.; Kuzell, C. R.—*Metallurgical Works Tramways.* [Reviews and discusses the use of different types of locomotives used about smelters and in some cases gives cost data on their operation].—E. & M. J. Oct. 27 1916; p 613; pp 8*; 25c.

Collins, V. B.—*Coal-Cutting by Machinery in the Newcastle and Maitland Districts, N. S. W.* [Machines operated by electricity and compressed air are described and discussed].—Northern Engg. Inst. of N. S. W. April Proc.; p 25; pp 30*; 50c.

Copeland, Clem A.—*Properties of Iron and Steel Wires and Cables.* [Gives curves and tabulted data showing both physical and electrical properties].—Jnl. Elect., Power & Gas. Aug. 26 1916; p 157; pp 2¼*; 35c.

Daman, Arthur C.—*The Nevada Wonder Mill.* [Describes a 150-ton cyanide process where 10 tons per man per day are handled. The distribution of electric power is contained in tables].—E. & M. J. Nov. 25 1916; p 927*; pp 2*; 25c.

DeWolfe, E. C.—*A Modern Coal Mining Organization in Illinois.* [From Electrical Mining. The equipment, operation and methods of managing at the Madison Coal Corporation's mines are reviewed].—C. Tr. Bull. Aug. 1 1916; p 43; pp 8*; 25c.

Donaldson, R. D.—*Application of Central Station Power to Lime Plants and Quarries.*—National Lime Mfg. Assn. May 1916; pp 15.

Dwight, H. B.—*Steel Conductors for Transmission Lines.* — Proc. American Inst. of Elect. Eng. Aug. 1916; p 1259; pp 12*; 35c.

Fay, Albert H.—*Monthly Statement of Coal Mine Fatalities in the United States.* [Contains a list of permissible explosives, lamps and motors tested prior to Aug. 31 1916].—Bur. of Mines Statement July 1916; pp 28.

Findlay, D. C.—*Electrification of a Modern Cement Plant.* [A description of the Oregon Portland Cement Co.'s plant].—Jnl. of Elect. Power & Gas Sept. 16 1916; p 218; pp 2*; 35c.

Flaherty, B. G.—*Testing for Defective Insulators on High Tension Transmission Lines.* [Describes methods and apparatus used].—Proc. American Inst. of Elect. Eng. Aug. 1916; p 1221; pp 15*; 35c.

Fox, Gordon.—*Direct-Current Generator Characteristics.* [The influence of machine speed on compounding and commutation].—Pract. Eng. Nov. 15 1916; p 955; pp 1¾*; 20c.

Futers, T. Campbell.—*The Mechanical Equipment of Cwm Colliery, Llantwit Fardre, South Wales.* [The hoist, shaft, steam and electric equipment at the mines are described].—Coll'y Guard. Dec. 1 1916; p 1055; pp 3*; 35c.

Gahl, Rudolph.—*Operations and Methods in Use at the Inspiration Property, Arizona.* [A flow sheet of the mill, with considerable statistical data on the dis-

*Note.—For drills, pumps, fans, haulage and winding engines, dredges, excavators, crushers, separators, conveyors, transportation, machinery, etc., see respectively "Drilling and Boring," "Pumping," "Ventilation" and other appropriate headings in "Mine and Mining," "Mill and Milling," and "Miscellaneous."

tribution of power, milling and flotation work].—Mg. World Nov. 11 1916; p 825; pp 3*; 10c.

Gilman, R. E.; Fortescue, C. Le G.—*Single Phase Power Service from Central Stations.* [The unbalanced voltage in supplying single phase power from a polyphase system is explained].—Proc. A. I. M. E. Oct. 1916; p 1431; pp 21*; 35c.

Haas, Herbert.—*Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Compares the advantages and costs of operating each with respect to generating electricity. Details on fuel costs are given].—Bull. A. I. M. E. July 1916; p 1171; pp 13*; 35c; Iron Age Aug. 10 1916; p 291; pp 1*; 30c.

Hellmund, R. E.—*Rating of Mine Locomotives.*—Coal Age Aug. 26 1916; p 337; pp 2; 20c.

Higgins, Will C.—*Electric Hoisting Plant of the Eagle & Blue Bell Co., Utah.* [General description of the plant, compressor and mine workings].—S. L. Mg. Rev. Nov. 15 1916; p 15; pp 2*; 25c.

Hillen, A. G.—*Mines and Mining Operations at Ely, Nevada.* [A review of operations, with specific information on power equipment being used]. — Mg. World Sept. 2 1916; p 403; pp 5*; 10c.

Hines, Richard P.—*Natural Gas Operating Coal Mines.* [Speaks of a central gas-power station of the Consolidated Coal Co., W. Va., and the distribution of the electricity from this station to the mines].—C. Tr. Bull. Oct. 2 1916; p 34; pp 1¾; 25c.

Hood, B. B.—*Proper Current Densities.* [Curves are given from which the proper current density for both steel and copper transmission lines may be found, together with some costs related thereto].—Met. & Chem. Engg. Nov. 15 1916; p 571; pp 2¼*; 35c.

Hubbard, Charles, L.—*Operating Costs in Combined Power and Heating Plants.* —Engg. Mag. Sept. 1916; p 869; pp 10; 35c.

Jackson, C.—*Rock Excavation in Coal Mines.* [Five types of drills are described, including electric and compressed air drills, the latter getting its air from a portable electrically driven compressor]. —Coal Age July 1 1916; p 32; pp 2¼*; 20c.

Jobke, August F.—*Improved Magnetic Separator.* [A description of the author's improvement in magnetic separators. It is brought out that inertia of the particle causes it to pass the magnetic zone].—E. & M. J. Nov. 4 1916; p 817; pp 3*; 25c.

Kapp, Gisbert.—*The Principles of Electrical Engineering and Their Application.* [A text and general elementary reference].—Ed. Arnold, London; book; pp 356*; $4.

Koch, Richard.—*The Electric Safety Lamp.* [Figures on the cost of upkeep of these lamps].—Coal Age Oct. 7 1916; p 582; pp 1¾*; 20c.

Leaming, T. H.; Schlundt, Herman; Underwood, Julius.—*Comparison of the Ionization Currents Due to Equal Quantities of Radium Emanation in Different Types of Electroscopes.* [A method by which small quantities of radium may be determined]. — American Electrochem. Soc. Adv. Paper 2; p 13; pp 14; 35c.

Lehr, E. E.; Minick, I. C.—*Automatically Controlled Feeder Voltage Regulators.* [On the design of the equipment]. —Pract. Eng. Aug. 15 1916; p 700; pp 2¼*; 20c.

Luscomb, H. T.—*How to Select Prime Movers for Industrial Electrical Generating Plants.* [A discussion and detailed data on generating electricity from steam plants].—Engg. Mag. Aug. 1916; p 705; pp 11¾*; 35c.

Legrand, Charles.—*Power Plant of the Burro Mountain Copper Co., New Mexico.* [Electric power generated by direct connection to Diesel engines is used].— Bull. A. I. M. E. Sept. 1916; p 1531; pp 8*; 35c.

Magnusson, C. E.; Burbank, S. R.—*An Artificial Transmission Line with Adjustable Line Constants.*—Proc. American Inst. of Elect. Eng. Aug. 1916; p 1245; pp 14*; 35c.

McConahey, W. M.—*Transformer Efficiency and Regulation.* [Discusses the nature and cause of losses and their relation to efficiency. Also the effects of load and power factor variations].— Pract. Eng. Aug. 1 1916; p 650; pp 1½*; 20c.

Molesworth, Guilford L.—*Pocket Book of Engineering Formulae.* [Information on civil, mechanical and electrical engineering work].—Spon & Chamberlain, N. Y.; book; pp 936*; $1.50.

Moore, H. W.—*Blasting Practice at Chuquicamata, Chile.* [A system of electric blasting. Tunnels are made and loaded with powder for the blasting of large blocks of ground].—M. & S. P. July 8 1916; p 60; pp 2*; 20c.

Murphy, S. J.—*A Submarine Pipe Line Across the Atlantic.* [A scheme for the under-sea transportation of oil and similar liquids].—Petro. World Nov. 1916; p 530; pp 2½*; 35c.

Musser, H. P.; Lamb, F. B.—*Practical*

Considerations Relative to Purchased Power. [Gives curves and discussion comparing the advisability of purchased power over power generated at the mine]. —Coal Age July 1 1916; p 15; pp 2*; 20c.

Newton, G. J.—*Underground Distribution Systems.*—Proc. American Inst. of Elect. Eng. Aug. 1916; p 1193; pp 16*; 35c.

Norman, Fred.—*Cadogan Power Plant.* [A small, compact plant using picking-table refuse for coal. Alternating current is generated and transformed into direct current].—Coal Age Dec. 2 1916; p 928; pp 3¼*; 20c.

Northrup, E. F.; Sherwood, R. G.—*New Method of Measuring Resistivity of Molten Materials: Results for Certain Alloys.* [Gives complete details of the method of procedure and results in some cases].—Jnl. Franklin Inst. Oct. 1916; p 477; pp 35*; 60c.

Pannell, Ernest V.—*Recent Developments in Aluminum.* [A number of recently found properties, both thermic and electrical].—Trans. American Inst. of Metals Vol. IX; p 167; pp 27*; 35c.

Pease, J. H.—*Economic Application of Electricity to Mining.* [A paper read before the Ipswich and District Mg. Inst.]. —Queen. Govt. Mg. Jnl. Sept. 15 1916; p 434; pp 2½; 35c.

Peltier, M. F.—*Coal Mining in Northern Wyoming.* [Briefs on operations of several companies, the coal deposits and grades and methods used in mining].— Coal Age Nov. 18 1916; p 832; pp 2¾*; 20c.

Root, W. A.—*Aspan, Over the Range in Pitkin County, Colorado.* [The history of the camp and several of the companies operating in it are included in the description].—Mg. World Dec. 2 1916; p 943; pp 2¾*; 10c.

Rosa, E. B.; Vinal, G. W.—*Volume Effect in the Silver Voltameter.*—U. S. Bur. of Stand. Sci. Paper 283; pp 11*; 15c.

Rose, Hugh.—*Mining Practice at Santa Gertrudis, Mexico.* [Abst. from the A. I. M. E. Bulletin. Contains drawings, details and general description].—E. & M. J. Aug. 26 1915; p 371; pp 6*; 25c.

Roux, G. P.—*Alternating-Current Distribution.* [Discusses the advantages of 1-phase, 2-phase and 3-phase systems].— Pract. Eng. Dec. 1 1916; p 995; pp 2*; 20c.

Scott, W. A.—*Leadville Pumping and Drainage Projects.* [Descriptions are given of methods used and plants at various places in the district which use different kinds of power, styles of pumps and methods of operation].—Mg. World Sept. 23 1916; p 533; pp 3¾*; 10c.

Scott, W. A.—*Operations of Silver King Coalition Mines Co., Park City, Utah.* [A general description of operations and equipment including pumping and hoisting].—Mg. World Sept. 9 1916; p 447; pp 3*; 10c.

Scott, W. A.—*Plant Construction of the New Cornelia Copper Co., Arizona.* [Electric power is used and the ores are refined by electrolysis and leaching].— Mg. World July 15 1916; p 89; pp 3½*; 10c.

Seede, J. A.—*Electric Arc Welding Finds Many Uses in Mines and Mills.* [The author cites and describes practical applications of repairing parts with the electric arc].—Mg. World July 22 1916; p 133; pp 3¼*; 10c.

Sibley, Robert.—*The Most Powerful Dredge Afloat.* [The dredge is in California and is electrically operated].—Jnl. of Elect., Power & Gas Nov. 11 1916; p 371; pp 3¼*; 35c.

Silsbee, Francis B.—*A Study of the Inductance of Four-Terminal Resistance Standards.* [Laboratory methods for measuring resistance of less than 1 ohm]. —U. S. Bur. of Stand. Sci. Paper No. 281; pp 48*; 25c.

Streeter, Robert L.—*Power Equipment for Steam Plants.* [Discusses engines used in electric power generating plants]. —Engg. Mag. Oct. 1916; p 33; pp 12*; 35c.

Taylor, W. G.—*Motor Equipment for Petroleum Recovery.* [A paper read before the American Inst. of Elect. Eng. Deals with the use of induction motors in drilling, pumping, and cleaning oil wells]. —Elect. Rev. & West. Elect. Aug. 5 1916; p 232; pp 5½*; 20c; West. Engg. Oct. 1916; p 377; pp 1*; 20c.

Taylor, W. G.—*Oil Well Motor Equipment.* [A paper read before the American Inst. of Elect. Eng. Gives the electrical power and equipment needed in drilling an oil well].—Jnl. of Elect. Power & Gas July 1 1916; p 6; pp 2½*; 35c.

Thomson, Herbert G. — *Construction and Operation of the Nevada Packard Mill.* [A cyanide plant treating ore in which the principal mineral is cerargyrite].—M. & S. P. Sept. 9 1916; p 377; pp 8*; 20c.

Thomson, Lesslie R. — *High-Tension Transmission Lines and Steel Towers.* [Deals with operating costs, loads on the towers, etc.].—Canadian Eng. Nov. 30 1916; p 445; pp 1¾; 35c.

Thornton, W. M.—*Influence of Pres-*

sure on the Electrical Ignition of Methane. [A paper read before the British Assn., Sec. G, dealing with experimental work. Curves are shown].—Coll'y Guard. Sept. 15 1916; p 503; pp 2*; 35c.

Trapp, C. H.—*Wiring for Motor Additions.* [Describes a readily constructed runway for wires leading to machines].—Pract. Eng. Dec. 1 1916; p 994; pp 1*; 20c.

Walker, Sydney F.—*Electric Signaling with Bare Wires.* [A general talk on proper practice resulting from investigations in England].—I. & C. Tr. Rev. Sept. 8 1916; p 279; pp 1; 35c.

Warren, H. M.—*Electrical Distribution and Application in Mines.* [On the fastening and placing of cables underground in coal mines].—Coal Age July 15 1916; p 98; pp 5¼*; July 22 1916; p 138; pp 4*; 40c.

Wheeler, R. V.; Thornton, W. M.—*Electric Signaling with Bare Wires.* [Report on the danger of ignition of inflammable gaseous mixtures by the break-flash of the signal wires].—His Majesty's Stationery Office, London; 35c.

Yeatman, Pope.—*Mine of Chile Exploration Co., Chuquicamata, Chile.* [A paper read before the Pan-American Sci. Cong. The history, geology, reserves, power plant and testing of hydrometallurgical treatment of the ores are included].—Teniente Topics Aug. 1916; p 1; pp 18*; 35c.

——— *Baku Russian Petroleum Co., Russia.*—Petro. World Sept. 1916; p 426; pp 3; 35c.

——— *Costs of Operating Electric Cap Lamps.*—Coal Age July 1 1916; p 17; pp ¾; 20c.

——— *Construction and Operating Data on Diesel Engines.* [From a report of the committee on Prime Movers of the N. E. L. A., giving information for making estimates and curves for rapid calculation].—Pract. Eng. Nov. 15 1916; p 957; pp 1; 20c.

——— *Cap Lamp with New Feature.* [An electric lamp with a straight filament passing horizontally across the reflector].—Coal Age Dec. 2 1916; p 918; pp 1¼*; 20c.

——— *Coedely Colliery, England.* [Describes the power plant and general surface equipment, with some details].—I. Tr. Rev. Dec. 8 1916; p 693; pp 3*; 35c.

——— *Construction of a Big Plant.* [General arrangement and some special construction features at the Public Service Electric Co.'s Plant, Essex, New Jersey].—Pract. Eng. Sept. 1 1916; p 727; pp 15*; 20c.

——— *Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Discussion of a paper by Herbert Haas].—A. I. M. E. Bull. 1916; p 2213; pp 9; 35c.

——— *Electric Winding in South Yorkshire Collieries, England.*—Coll'y Guard. Aug. 18 1916; p 301; pp 1⅓*; 35c.

——— *Electric Signaling in Collieries.*—I. & C. Tr. Rev. Oct. 13 1916; p 453; pp 1*; 35c.

——— *Electric Signaling in Mines.*—Coll'y Guard. July 28 1916; p 157; pp 3*; 35c.

——— *Equipment of the Valleyfield Colliery.* [Gives drawings and description of the steam-turbo and electric plants, besides a description of the coal washing plant and fan and boiler house].—Coll'y Guard. Nov. 17 1916; p 951; pp 2⅓*; 35c.

——— *1500-K. W. Geared Turbo Alternator.* [Abst. from Engineering on an installation at an English plant].—Electrician Oct. 13 1916; p 40; pp 3½*; 35c.

——— *G-E Miners' Lamp Approved* by the U. S. Bureau of Mines.—Mg. World Nov. 18 1916; p 869; pp 1¼*; 10c.

——— *Gold Dredging in Yukon.* [Abstract of a paper published by the Minister of Interior, Canada. The doings and equipment of operating companies in the district are reviewed].—Canadian Mg. Jnl. Nov. 15 1916; p 535; pp 10¾*; 35c.

——— *Motor-Driven Compressor at Britannia Colliery.* [General layout drawings and description of the installation are given].—I. & C. Tr. Rev. Oct. 6 1916; p 413; pp 2*; 35c.

——— *Mount Morgan Mine and Works, Australia.* [Describes the sintering and converting plant equipment and operations. Also the electric power plant using turbines].—Mg. & Engg. Rev. Aug. 5 1916; p 278; pp 6¾*; 35c.

——— *Portable Electric-Driven Air Compressors for Mines.*—Mg. World Aug. 19 1916; p 331; pp ¾*; 10c.

——— *Power Supply of the Rand.* [The inaugural address of the new president of the South African Inst. of Eng.].—S. Afr. Mg. Jnl. Sept. 9 1916; p 39; pp 3; 35c.

——— *Ray Consolidated Copper Co., Developing the Property with an Electric Dragline Excavator.* [Describes an electrically operated dragline excavator mounted on caterpillars at Hayden, Ariz.].—Excavating Eng. Dec. 1916; p 95; pp 3½*; 20c.

——— *Russian Mines, Growth of Electrical Equipment in.* [Gives details

as to the number, size, etc., of electrical plants at mines in Russia].—C. Tr. Bull. Oct. 2. 1916; p 47; pp 3½; 25c.

——— *Surface Plant at Brodsworth Main Colliery, England.* [Turbines using mixed pressure steam are used. Hoist, boilers, compressed air, etc., are described].—Coll'y Guard. Sept. 1 1916; p 401; pp 1½*; 35c.

——— *Unfälle in elektrischen Betrieben auf den Bergwerken Preussens im Jahre* 1913. [Accidents in electrical work in the mines of Prussia in 1913].—Zts. Berg, Hütten & Salinenw. Band 62, 1914; p 343; pp 241½*; $1.50.

——— *United States Metals Refining Co.'s Plant, Grasselli, Indiana.* [A description of the steam and electric power plants at the electrolytic lead refinery].—Pract. Eng. Aug. 1 1916; p 641; pp 4½*; 20c.

Hydroelectric

Chapin, Theodore; Canfield, George H.—*Mining Developments and Water-Power Investigation in Southeastern Alaska.* [The gold and copper mines are described by districts in which they are located and reviews are made of sources of water power].—U. S. G. S. Bull. 642-B; pp 55*.

Clark, Walter C.—*Electricity at the Bunker Hill & Sullivan Mines, Idaho.* [On the equipment and use of electricity in the mills, rock house, for pumping, hoisting, haulage and signaling].—Jnl. Elect. Power & Gas. Dec. 23 1916; p 483; pp 3¼*; 35c.

Miller, Benjamin Leroy; Singewald, J, T.—*The Gold Mines of Brazil.* [The two most noted mines are described. The power question, mining and refining of the ore are dealt with].—E. & M. J. July 29 1916; p 207; pp 5*; 25c.

Pierce, H. J.—*Federal Water-Power Legislation.* [An addresss before the National Elect. Light Assn. on the conservation of coal and oil by using hydroelectric power and the lack of congress to provide for such development].—U. S. Senate Document 468; pp 12.

Pierce, H. J.—*Necessity for Water Power Development.* [A discussion of the question of hydro-electric installations which are today being held back some].—Mg. World July 15 1916; p 103; pp 1¼; 10c.

Strong, William.—*Electro-Metallurgical Uses of Surplus Power.* [On the possible uses to which the excess hydroelectric power of our western states might be put].—Jnl. Elect. Power & Gas July 15 1916; p 43; pp 3*; 35c.

——— *Analysis of Merrill Report on Water-Power.* [Comment on this government report is made, saying that the information and conclusions are at error].—Elect. World July 1 1916; pp 20; 40c.

——— *Braden Copper Co.'s Hydroelectric Installation* in 1909. [Translated from Estadistica Minera de Chile].—Teniente Topics June 1916; p 7; pp 4*; 35c.

——— *Swedish State Hydro-Electric Power Station at Alfkarleby, Sweden.*—Engg. July 14 1916; p 29; pp 3*; 35c. 21 1916; p 51; pp 8*; 35c.

COMPRESSED AIR

Ayer, Frank.—*Reducing Air-Drill Repair Costs.* [A general talk pointing out various ways by which this cost can be reduced].—E. & M. J. Nov. 11 1916; p 864; pp 2*; 25c.

Balcomb, J. C.—*A Remarkable Tunnel Rapidly Driven in Brazil.* [Gives details of operation, with drawings. A bonus system and unusual method of blasting are described].—Comp. Air July 1916; p 8040; pp 5*; 20c.

Buffum, F. D.—*Compressed Air for Sinking a Shaft.* [Abst. from Coal Age. Deals with methods of piping and handling the compressed air which was used entirely for power. Remedies for difficulties encountered are given].—Comp. Air July 1916; p 8048; pp 3*; 20c.

Burch, H. K.—*The Inspiration Mine Plant.* [Abst. from a paper read before the A. I. M. E. Describes the equipment and methods used for handling the ore from the mine, both underground and on the surface].—E. & M. J. Sept. 23 1916; p 537; pp 5¾*; 25c.

Capron, W. C.; Kuzell, C. R.—*Metallurgical Works Tramways.* [Reviews and discusses the use of different types of locomotives used about smelters and in some cases gives cost data on their operation].—E. & M. J. Oct. 27 1916; p 613; pp 8*; 25c.

Chodzko, A. E.—*The Hydraulic Air-Compressor.* [Reviews the theory of the hydraulic compression of air and speaks of the possibilities of developing this natural resource on the Pacific coast].—M. & S. P. Dec. 16 1916; p 879; pp 5*; 20c.

Collins, V. B.—*Coal-Cutting by Machinery in the Newcastle and Maitland Districts, N. S. W.* [Machines operated by electricity and compressed air are described and discussed].—Northern Engg. Inst. of N. S. W. April Proc.; p 25; pp 30*; 50c.

Dixon, C. Y.—*Plant and Method of Dry Excavation, Livingstone Channel, Detroit River, Michigan.* [From Professional Memoirs. Pumping, drilling, costs, equipment used, etc., are included in this review].—Engg. & Cont. Nov. 15 1916; p 425; pp 2*; 25c.

Gabelein, Paul W.—*Air Lifts at a Cyanide Plant.* [From the E. & M. J. describing this type of installation at the Baker Mines Co., Oregon].—Comp. Air Aug. 1916; p 8075; pp 1¼*; 20c.

Gillette, Halbert Powers.—*Handbook of Rock Excavation Methods and Costs.* [Details regarding the different methods used in rock excavation, as drilling, explosives, etc.].—Clark Book Co.; book; pp 835*; $5.

Green, Raoul.—*Actual Costs of Mine Haulage by Horses and by Compressed Air.* [A paper read before the Canadian Mg. Inst., giving actual costs under varying conditions].—Mg. World Oct. 7 1916; p 625; pp 1¼; 10c; Comp. Air Sept. 1916; p 8116; pp 2; 20c.

Green, R.—*Horse Haulage vs. Compressed Air Haulage at Collieries.* [In discussing the subject a comparison of actual costs is made].—Canadian Mg. Inst. Bull. Aug. 1916; p 711; pp 6; 35c.

Higgins, Will C.—*Electric Hoisting Plant of the Eagle & Blue Bell Co., Utah.* [General description of the plant, compressor and mine workings].—S. L. Mg. Rev. Nov. 15 1916; p 15; pp 2*; 25c.

Hicks, H. L.—*Compressed Air at Rockland Lake Quarry, New York.* [Describes drilling and blasting operations, with some information on the general operation of the quarry].—Comp. Air July 1916; p 8045; pp 4*; 20c.

Howard, L. O.—*The Basic-Lined Converter in the Southwest.* [A general review, with details].—Bull. A. I. M. E. Sept. 1916; p 1539; pp 5; 35c.

Jackson, C.—*Rock Excavation in Coal Mines.* [Five types of drills are described, including electric and compressed air drills, the latter getting its air from a portable electrically driven compressor].—Coal Age July 1 1916; p 32; pp 2¼*; 20c.

Johnson, J. E., Jr.—*The Rate of Driving the Blast Furnace.* [The effects resulting from too slow or fast a rate are discussed in detail in particular on the power requirements for blowing and fuel consumption].—Met. & Chem. Engg. July 1 1916; p 21; pp 4¾*; 30c.

Jorgensen, F. F.—*Air Pressure Mine Sprinkling Car.* [Drawings are shown, with a description of its construction and operation].—Comp. Air Nov. 1916; p 8179; pp 1½*; 20c.

Kirkland, H. B.—*Pneumatic Concreting of the Van Buren Street Tunnel.* [Some tables of details are given].—Mine & Quarry Oct. 1916; p 937; pp 2½*; 20c.

Klingenberg, G.—*The Transmission of Compressed Air on the Rand, South Africa.* [Abst. from "Large Electric Power Stations"].—S. Afr. Engg. July 1916; p 2; pp 2*; 35c.

Lucht, F. W., Jr.—*A Study of the Compressor Indicator Diagram.* [Discusses theory principally]. — Colo. School of Mines Qt'ly July 1916; p 16; pp 4*; 35c.

Parker, S. M.—*Plant of the Babylonia Gold Mines, Nicaragua.* [Detailed description of the cyanide plant, which uses pneumatic stamps, and the results obtained at the plant in the various steps of the process].—M. & S. P. Dec. 23 1916; p 911; pp 4*; 20c.

Potter, A. A.; Buck, W. A.—*Internal Combustion Engines as Applied to Tractors.* [A paper read before the A. S. M. E.]—Pract. Eng. Dec. 15 1916; p 1031; pp 1½; 20c.

Root, W. A.—*Aspen, Over the Range in Pitkin County, Colorado.* [The history of the camp and several of the companies operating in it are included in the description].—Mg. World Dec. 2 1916; p 943; pp 2¾*; 10c.

Rossback, E. J.—*Tunnel Construction on the Mill Creek Sewer.* [Methods of operating, drilling, compressed air equipment, lining with concrete and brick, etc., are among things described].—Mine & Quarry Oct. 1916; p 907; pp 11*; 20c.

Schultz, J. E. M.—*Central Air Plant at a Georgia Quarry.* [The quarry, compressor plant and equipment are described].—Mine & Quarry Oct. 1916; p 924; pp 5*; 20c.

Simons, Theodore.—*Efficiency of Compressed Air Installations.* [One pound of air is followed through the stages of compression, transmission and use and the efficiency calculated. This is followed by suggestions in the design of compressed air equipment to give better efficiency].—E. & M. J. Dec. 16 1916; p 1047; pp 3½; Dec. 23 1916; p 1087; pp 3¼*; 50c.

Smith, Philip H.—*Unsolved Problems of the Diesel Engine.*—Petro. World Sept. 1916; p 438; pp 1½; 35c.

Stone, J. P.—*Compressed Air vs. Steam for Steam Hammers.* [An instance where compressed air is more economical than steam].—Pract. Eng. Aug. 15 1916; p 703; pp 1½; 20c.

Symons, S. W.—*Compressed-Air Coal*

Cutters in Canadian Mines. [The drill is somewhat similar to the ordinary post rock drill].—Coal Age July 1 1916; p 28; pp 1¼*; 20c.

Tournay-Hinde, A. W.—*The Flow of Air in Lead Blast Furnaces.* [A paper read before the Engg. Assn. of New South Wales. Reviews investigations made along this line in Australia].—Mg. & Engg. Rev. June 5 1916; p 229; pp 1¾; 35c.

Tillson, B. F.—*Hammer Drill Records at the Franklin Mines, New Jersey.* [From a paper read before the A. I. M. E. Results obtained in drifting, stoping, raising, etc., are given with costs].—Comp. Air Sept. 1916; p 8123; pp 2½; 20c.

Warren, H. M.—*Electrical Distribution and Application in Mines.* [Speaks of the use of electricity for pumps, hoists, locomotives, drilling and air compression].—Coal Age July 22 1916; p 138; pp 4*; 20c.

——— *Fullerton, Hodgart and Barclay Vertical Air Compressor.* [Sectional and plain views are shown].—I. & C. Tr. Rev. Aug. 4 1916; p 132; pp 2*; 35c.

——— *Indicator Diagrams from Air Compressors.* [From Power, showing reproductions from several indicator cards].—E. & M. J. Dec. 16 1916; p 1046; pp 1*; 25c.

——— *Motor-Driven Compressor at Britannia Colliery.* [General layout drawings and description of the installation are given].—I. & C. Tr. Rev. Oct. 6 1916; p 413; pp 2*; 35c.

——— *Portable Electric-Driven Air Compressors for Mines.*—Mg. World Aug. 19 1916; p 331; pp ¾*; 10c.

——— *Power Supply of the Rand.* [The inaugural address of the new president of the South African Inst. of Eng.].—S. Afr. Mg. Jnl. Sept. 9 1916; p 39; pp 3; 35c.

——— *Recent Developments in Drilling Apparatus.* [Describes recent patents for equipment to be used with rock drills].—Mg. World Oct. 21 1916; p 705; pp 1¼; 10c.

——— *Recent Improvement in Air Compressors.*—Mine & Quarry Oct. 1916; p 930; pp 5½*; 20c.

——— *Snake Creek Tunnel, Utah.* [A concrete tunnel. The construction and methods used in driving it are described].—M. & S. P. Aug. 5 1916; p 205; pp 2*; 20c.

——— *Surface Plant at Brodsworth Main Colliery, England.* [Turbines using mixed pressure steam are used. Hoist, boilers, compressed air, etc., are described].—Coll'y Guard. Sept. 1 1916; p 401; pp 1½*; 35c.

COMBUSTION ENGINES

Capron, W. C.; Kuzell, C. R.—*Metallurgical Works Tramways.* [Reviews and discusses the use of different types of locomotives used about smelters and in some cases gives cost data on their operation].—E. & M. J. Oct. 7 1916; p 613; pp 8*; 25c.

Clapp, W. Howard.—*Economics and Costs of Motor Truck Operation.* [A paper read before the Amer. Soc. of Mech. Eng. The costs of trucks and various details in the cost of their operation is given].—Canadian Eng. Nov. 9 1916; p 383; pp 3¾*; 35c.

Clapp, W. B.—*Motor Truck Development.* [Abstract of a paper read before the A. I. of Mech. Eng. A table showing operating costs for trucks making various mileages per day is given].—Mg. Jnl. Nov. 4 1916; p 735; pp 1¼; 35c.

Clarke, Thomas C.—*The By-Product Oven an Adjunct to Preparedness.* [A paper read before the Soc. of Chem. Ind.].—Coal Age Aug. 26 1916; p 342; pp 1¾; 20c.

Daugherty, S. R.—*Heavy-Oil Engines.* [Abstract of a paper read before the A. I. of Mech. Eng.].—Canadian Eng. Nov. 2 1916; p 362; pp 1¾; 35c.

Garrard, A.—*Gas, Oil and Petrol Engines.* [Deals with the history of combustion engines, their construction and use and the operation of equipment used in connection with them].—Whittaker & Co., London; book; pp 221*; $1.50.

Gochnauer, H. W.—*Pumping Costs with Diesel Engines.*—Engg. Rec. April 1 1916; 20c.

Haas, Herbert.—*Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Compares the advantages and costs of operating each with respect to generating electricity. Details on fuel costs are given].—Bull. A. I. M. E. July 1916; p 1171; pp 13*; 35c; Iron Age Aug. 10 1916; p 291; pp 1*; 30c.

Hays, Joseph W. — *Semi-Technical Studies in Physical Science.* [On the way a gas engine operates].—Steam Sept. 1916; p 66; pp 3; 35c.

Hines, Richard P.—*Natural Gas Operating Coal Mines.* [Speaks of a central gas-power station of the Consolidated Coal Co., W. Va., and the distribution of the electricity from this station to the mines].—C. Tr. Bull. Oct. 2 1916; p 34; pp 1¾; 25c.

Legrand, Charles.—*Power Plant of the Burro Mountain Copper Co., New Mexico.* [Electric power generated by direct connection to Diesel engines is used].—

Bull. A. I. M. E. Sept. 1916; p 1531; pp 8*; 35c.

Scott, W. A.—*Operations at Battle Mountain, Nevada.*—Mg. World Aug. 19 1916; p 327; pp 2*; 10c.

Shafer, C. W.—*Two-Crank, Four-Cylinder Combustion Engine.* [A new arrangement for four-cylinder combustion engines].—Pract. Eng. Aug. 15 1916; p 706; pp 1½*; 20c.

Smith, P. H.; Primrose, H.—*Cylinder Liner Wear and Remarks on Piston Seizures.* [The information is on Diesel and other types of internal-combustion engines].—Petro. World Nov. 1916; p 540; pp 5*; 35c.

Watkinson, W. H.—*Starting Diesel Engines with Low Compression.* [A paper read before Sec. G of the British Assn. Treats on experiments made to show the possibility of running Diesel engines with low-compression].—Engg. Sept. 22 1916; p 290; pp 1*; 35c.

Wilkins, F. Trevor.—*Diesel Engine Trials.* [A paper read before the Inst. of Mech. Eng., England. Details of tests of various kinds are given].—Engg. Oct. 27 1916; p 422; pp 4*; 35c.

——— *Construction and Operating Data on Diesel Engines.* [From a report of the committee on Prime Movers of the N. E. L. A., giving information for making estimates and curves for rapid calculation].—Pract. Eng. Nov. 15 1916; p 957; pp 1; 20c.

——— *Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Discussion of a paper by Herbert Haas].—A. I. M. E. Bull. 1916; p 2213; pp 9; 35c.

——— *Power Plant of the Burro Mountain Copper Co., New Mexico.* [Discussion of a paper by Chas. Legrand].—A. I. M. E. Bull. Dec. 1916; p 2181; pp 2½; 35c.

——— *The Diesel Engine.* [From a paper read before the N. E. L. A.].—Pract. Eng. July 15 1916; p 615; pp 1½*; 20c.

STEAM AND STEAM ENGINES

Bowron, Charles E.—*Factors Governing the Efficiency of Steam Plants.* [A general discussion of the subject read before the Alabama Coal Operators' Assn.].—Coal Age Sept. 30 1916; p 539; pp 2½; 20c.

Buck, H. W.—*Comparisons Between Steam and Water Power.* [Discussion of the two forms of power and their application].—Mg. World Aug. 26 1916; p 373; pp 1½; 10c.

Crawford, C. W.—*When the Boiler Attacks the Engine.* [On the use of and trouble occurring from moisture in steam in excessive quantities].—Coal Age Dec. 16 1916; p 1010; pp 1½; 20c.

Crawford, C. W.—*The Steam Engine's Extravagance.* [A general discussion on the use of different designs of steam engines].—Coal Age Aug. 26 1916; p 351; pp 1¼; 20c.

DeWolfe, E. C.—*A Modern Coal Mining Organization in Illinois.* [From Electrical Mining. The equipment, operation and methods of managing at the Madison Coal Corporation's mines are reviewed].—C. Tr. Bull. Aug. 1 1916; p 43; pp 8*; 25c.

Dorman, H. R.—*Data on the Use of Water Softener for Boiler Feed Water.* [A paper read before the Wisconsin Soc. of Eng.].—Chem. Eng. & Mfg. July 1916; p 22; pp 1¼*; 30c.

Fulton, A. D.; Parlett, R. C.—*The Effect of Surface Conditions Upon the Rate of Heat Transmission Through Steam Pipe Coverings.* [A thesis on the rate of heat transmission as noted from tests].—Wis. Eng. Nov. 1916; p 67; pp 8*.

Futers, T. Campbell.—*The Mechanical Equipment of Cwm Colliery, Llantwit Fardre, South Wales.* [The hoist, shaft, steam and electric equipment at the mines are described].—Coll'y Guard. Dec. 1 1916; p 1055; pp 3*; 35c.

Gage, Victor R.—*A Study of Heat Transmission in Steam Boilers.* [The tests were run on different types of boilers and the results are plotted onto curves. Formulas are also derived].—Sibley Jnl. Nov. 1916; p 29; pp 10½*; 30c.

Gillette, Halbert Powers.—*Handbook of Rock Excavation Methods and Costs.* [Details regarding the different methods used in rock excavation, as drilling, explosives, etc.].—Clark Book Co.; book; pp 835*; $5.

Haas, Herbert.—*Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Compares the advantages and costs of operating each with respect to generating electricity. Details on fuel costs are given].—Bull. A. I. M. E. July 1916; p 1171; pp 13*; 35c.

Haas, Herbert.—*The Diesel Engine.* [A paper read before the A. I. M. E. Its field in comparison with the steam-turbine in a large plant. Costs are given].—Iron Age Aug. 10 1916; p 291; pp 1*; 30c.

Hayes, J. W.—*How to Build Up Furnace Efficiency.*—J. W. Hayes, Chicago; book; pp 154*; $1.

Hirshfeld, C. F.; Ulbricht, T. C.—

Steam Power. [An up-to-date treatise of an elementary nature dealing with engines and accessories to be used as a text in colleges, though it is of no value to operators].—John Wiley & Sons; book; pp 420*; $2.

Hirshfield, C. F.—*Steam Power.* [An elementary treatise on the subject, omitting the deeper mathematics of the subject and the theory of thermodynamics].—Wiley & Sons; book; pp 420*; $2.

Hutzel, H. F.—*Chart for Determining Heat Loss in Flue Gases.* [Taken from an article in Power. Description and formulas are given, together with a reproduction of the chart].—E. & M. J. Dec. 23 1916; p 1091; pp 1¼*; 25c.

Hubbard, C. L.—*Boiler and Piping Arrangements for Small Central Plants.*—Steam July 1916; p 3; pp 2¾*; 35c.

Hubbard, Charles L.—*Making the Steam Plant Adequate for Both Power and Heating.* [Details on the operation of such a combination].—Engg. Mag. Aug. 1916; p 716; pp 7; 35c.

Hubbard, Charles L.—*Operating Costs in Combined Power and Heating Plants.*—Engg. Mag. Sept. 1916; p 869; pp 10; 35c.

Hubbard, C. L.—*Steam Requirements for Power and Heating.* [General and detailed information on the design and operation of steam plants].—Engg. Mag. July 1916; p 553; pp 9*; 35c.

Hubbard, Charles L.—*Steam Traps.* [Describes the use and construction of special types].—Steam Sept. 1916; p 69; pp 2*; 35c.

Keller, J. H.—*New Emperical Formulae for Hot Water Heating, with Pipe Sizes for Two-Pipe Systems.*—Steam July 1916; p 11; pp 2; 35c.

Lamb, M. R.—*Don Luis Charme's Tremain Steam Stamp.* [Some details of worries which come to consignees of mining machinery in South America].—E. & M. J. July 1 1916; p 17; pp 2¾*; 25c.

Luscomb, H. T.—*How to Select Prime Movers for Industrial Electrical Generating Plants.* [A discussion and detailed data on generating electricity from steam plants].—Engg. Mag. Aug. 1916; p 705; pp 11½*; 35c.

McMillan, L. B.—*The Heat Insulating Properties of Commercial Steam Pipe Coverings.* [Abst. from the Jnl. of the American Soc. of Mech. Eng.].—Steam Oct. 1916; p 97; pp 8½*; 35c.

Mossman, R. L.—*Construction of Combustion Instruments.* [Describes methods for making gas analyzer and draft gage].—Pract. Eng. Aug. 15 1916; p 697; pp 1½*; 20c.

Newman, M. F.—*Methods of Softening and Filtering Mine Water.* [Describes a plant for filtering the water so as to make it suitable for use in boilers].—Mg. World Dec. 9 1916; p 985; pp 2¼*; 10c.

O'Neill, Haylett.—*Estimating Condensing Water.* [Reproduction of a chart is given].—Pract. Eng. Nov. 15 1916; p 951; pp 1½*; 20c.

Painter, Walter.—*Virginia Power Co. Coal and Ash Tower.* [Describes a tower arrangement for the handling of coal and ashes].—Pract. Eng. Dec. 1 1916; p 985; pp 1*; 20c.

Peabody, Ernest H.—*Oil Fuel.* [On the use of forced draft and blowers in using oil fuel for generating steam].—Pract. Eng. Sept. 1 1916; p 737; pp 2¾*; 20c.

Poyner, J. M. — *Centralized Power Plant.* [Speaks in general of the central power plant equipment and the transmission of the current to various points where it is used].—Coal Age Dec. 16 1916; p 1007; pp 3*; 20c.

Pratt, Arthur D.—*The Utilization of Waste Heat for Steam Generating Purposes.* [A paper read before the American Soc. of Mech. Eng. Speaks of the utilization of waste heat from metallurgical furnaces and describes installations of this type in general].—Met. & Chem. Engg. Dec. 15 1916; p 696; pp 11¾*; 35c.

Schiefer, H. V.—*Handling Coal in Large Boiler Houses.*—Coal Age Aug. 26 1916; p 349; pp 2*; 20c.

Stone, J. P.—*Compressed Air vs. Steam for Steam Hammers.* [An instance where compressed air is more economical than steam].—Pract. Eng. Aug. 15 1916; p 703; pp 1½; 20c.

Streeter, Robert L.—*Power Equipment for Steam Plants.* [Discusses engines used in electric power generating plants].—Engg. Mag. Oct. 1916; p 33; pp 12*; Nov. 1916; p 193; pp 13*; 70c.

Streeter, Robert L.—*Power Equipment for Power Plants.* [Different kinds of boilers are described and the work to which each is peculiarly adapted is spoken of.]—Industrial Management Dec. 1916; p 355; pp 17*; 35c.

Streeter, Robert L.—*Power Equipment for Steam Plants.* [Discusses the construction and uses of different types of turbines].—Engg. Mag. Sept. 1916; p 879; pp 14*; 35c.

Taggart, James M.—*Heat Distributions and Economies in a Steam Power Plant.*—Steam Sept. 1916; p 63; pp 4*; 35c.

White, A. E.; Wood H. F.—*Recrystallization of Boiler Tubes.* [A paper read before the American Soc. of Testing Ma-

terials].—Iron Age July 6 1916; p 20; pp 1¼; 30c.

——— *Blowoff Valves and Systems.* [On methods of installing and the selection of the most adaptable type for particular uses].—Pract. Eng. July 1 1916; p 565; pp 3¾*; 20c.

——— *Boilers Heated by Coke-Oven Gas.* [Drawings of installations are shown and methods of operation described].—I. & C. Tr. Rev. Aug. 25 1916; p 213; pp 3⅓*; Sept. 8 1916; p 280; pp 1⅓*; 70c.

——— *British Association for the Advancement of Science.* [A report of the Fuel Economy Committee, dealing with the use, consumption and conservation of coal in different industries]. — Coll'y Guard. Sept. 15 1916; p 499; pp 4*. I. & C. Tr. Rev. Sept. 15; p 299; pp 5*; 35c.

——— *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables].—McGraw-Hill Co.; book; pp 1172*; $4.

——— *Coedely Colliery, England.* [Describes the power plant and general surface equipment, with some details].—I. Tr. Rev. Dec. 8 1916; p 693; pp 3*; 35c.

——— *Construction of a Big Plant.* General arrangement and some special construction features at the Public Service Electric Co.'s Plant, Essex, N. J.].—Pract. Eng. Sept. 1 1916; p 727; pp 15*; 20c.

——— *Cost of Coal and Oil as Fuel.* [Abst. from Power. The cost of steam per pound is given, with the evaporation per pound of coal and B. T. U. per gallon of oil].—E. & M. J. July 8 1916; p 93; pp 1¾*; 25c.

——— *1500-K. W. Geared Turbo Alternator.* [Abst. from Engineering on an installation at an English plant].—Electrician Oct. 13 1916; p 40; pp 3½*; 35c.

——— *Indicators.* [Indicators for testing the pressure and stroke of engines are described, various makes being included].—Pract. Eng. Dec. 1 1916; p 987; pp 2¾*; 20c.

——— *Mechanical Equipment at Point-No-Point.* [Details of coal, water and steam handling at the Essex plant of the Public Service Electric Co., New Jersey]. —Pract. Eng. Sept. 15 1916; p 771; pp 15¼*; 20c.

——— *Mount Morgan Mine and Works, Australia.* [Describes the sintering and converting plant equipment and operations. Also the electric power plant using turbines].—Mg. & Engg. Rev. Aug. 5 1916; p 278; pp 6¾*; 35c.

——— *Principios y Aplicaciones de los Indicadores para Maquinas de Vapor.* [The principals and application of indicators for steam engines].—Ing. & Contrista Sept. 1916; p 19; pp 4½; 35c.

——— *Power Supply of the Rand.* [The inaugural address of the new president of the South African Inst. of Eng.]. —S. Afr. Mg. Jnl. Sept. 9 1916; p 39; pp 3; 35c.

——— *Prices of Machinery for Mines.* [The average prices for mine equipment are plotted in curves for separate classes of machinery according to the size and capacity].—Coal Age July 1 1916; p 22; pp 3*; 20c.

——— *Principos y Applicaciones de los Indicadores para Maquinas de Vapor.* [Principals of application for the steam indicator]—Ing. & Contratista Oct. 1916; p 93; pp 4¼*; 35c.

——— *Station Operation.* [From a report of the National District Heating Assn. A board containing recorders and other devices are described as a means tending towards efficiency].—Pract. Eng. Dec. 1 1916; p 991; pp 3*; 20c.

——— *Steven's Under-Feed Stoker.*— Pract. Eng. Sept. 1 1916; p 764; pp 1½*; 20c.

——— *Steam Flow Into a Compound Steam-Turbine.* [Deals with the development of several formulas by use of calculus].—Engg. July 7 1916; p 1; pp 2*; 35c.

——— *Surface Plant at Brodsworth Main Colliery, England.* [Turbines using mixed pressure steam are used. Hoist, boilers, compressed air, etc., are described].—Coll'y Guard. Sept. 1 1916; p 401; pp 1½*; 35c.

——— *United States Metals Refining Co.'s Plant, Grasselli, Indiana.* [A description of the steam and electric power plants at the electrolytic lead refinery].— Pract. Eng. Aug. 1 1916; p 641; pp 4½*; 20c.

GAS PRODUCERS; PRODUCER GAS

Greaves-Walker, A. F.—*The Operation of a Producer Gas Fired Chamber Kiln.*— B. & C. Rec. Oct. 3; p 595; pp 3½*; Oct. 17 1916; p 711; pp 2½*; 70c.

Morgan, G. T.—*Some Chemical Aspects of the Peat Problem.* [Reprint from the Irish Technical Jnl. Treats on the using of this resource for making gas and ammonia products].—Jnl. of American Peat Soc. July 1916; p 141; pp 10*.

Norman, Fred.—*Cadogan Power Plant.* [A small, compact plant using picking-table refuse for fuel. Alternating current

is generated and transformed into direct current].—Coal Age Dec. 2 1916; p 928; pp 3¼*; 20c.

Taggart, James M.—*Heat Distributions and Economies in a Steam Power Plant.* [Discusses steam generating plants from a thermal viewpoint].—Steam Dec. 1916; p 153; pp 2½*; 35c.

Trautschold, R.—*Gas Producer Control.*—Pract. Eng. July 15 1916; p 614; pp 1½; 20c.

——— *Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Discussion of a paper by Herbert Haas].—A. I. M. E. Bull. 1916; p 2213; pp 9; 35c.

——— *Equipment of the Valleyfield Colliery.* [Gives drawings and description of the steam-turbo and electric plants, besides a description of the coal washing plant and fan and boiler house].—Coll'y Guard. Nov. 17 1916; p 951; pp 2⅓*; 35c.

——— *Lymn-Rambush Gas-Producer.* [Drawings and illustrations showing its operation and construction].—Engg. Aug. 11 1916; p 127; pp 1*; 35c.

——— *Wood-Gas Producer at the Hampden Mine.* [Drawings and description of a piece of equipment for the making of gas from wood].—Mg. Mag. Nov. 1916; p 280; pp 2*; 50c.

MISCELLANEOUS POWER AND MACHINERY

Abady, Jacques.—*Soot Blowers.* [A paper read before the Nottingham Guild of the Mechanical and Electrical Engineers, giving the advantages and operating methods of mechanical soot blowers].—Pract. Eng. Oct. 1 1916; p 827; pp 4½*; 20c.

Bain, Foster H.—*Labor Problems in African Mines.* [Treats on the question of working and living conditions, with respect to sanitation].—Mg. Mag. Oct. 1916; p 199; pp 10; 50c.

Brown, J. F. K.—*Imagination Applied to Mining.* [A review of the possible future as regards the transmission of electric power, pumping, etc. The cases are purely hypothetical].—Coal Age July 22 1916; p 142; pp 2¾; 20c.

Buck, H. W.—*Comparisons Between Steam and Water Power.* [Discussion of the two forms of power and their application].—Mg. World Aug. 26 1916; p 373; pp 1½; 10c.

Cooper, Stanley G.—*The Production and Use of Power and Its Relation to Fuel Economy.*—I. & C. Tr. Rev. June 30 1916; p 743; pp 1½*; July 14 1916; p 44; pp 1*; 70c.

Fouhy, W. J.—*The Merits of Oil and Grease Lubrication.* [Discusses the question of lubrication, citing much specific data].—Mg. World July 15 1916; p 95; pp 2¾; 10c.

Gahl, Rudolph.—*Operations and Methods in Use at the Inspiration Property, Arizona.* [A flow sheet of the mill, with considerable statistical data on the distribution of power, milling and flotation work].—Mg. World Nov. 11 1916; p 825; pp 3*; 10c.

Haas, Herbert.—*The Diesel Engine.* [A paper read before the A. I. M. E. Its field in comparison with the steam-turbine in a large plant. Costs are given].—Iron Age Aug. 10 1916; p 291; pp 1*; 30c.

Huac, A. J.—*Cost Accounting for the Clay Plant.* [A series of articles, including forms, tables and description for a complete cost accompanying system].—B. & C. Rec. Aug. 15 1916; p 307; pp 3; 35c.

Kent, Robert Thurston.—*Power Transmission by Leather Belting.* [Tables, formulas, theory and practical information regarding the practical use of belting in power transmission are given].—Wiley & Sons; book; pp 114*; $1.25.

Kent, Robert T.—*Power Transmission by Leather Belting.*—Wiley & Sons; book; pp 114*; $1.25.

Kimball, G. H.—*A Serviceable Oiling System.* [On the development of a unit engine oiling system for reusing oil].—Pract. Eng. Oct. 1 1916; p 831; pp 1½*; 20c.

Mann, F. W.—*Lubrication and Lubricating Oils.* [From an address before the American Petroleum Soc., dealing on the theory of lubrication and the properties and requirements of good lubricants].—Pract. Eng. Oct. 1 1916; p 833; pp 1½; 20c.

McBride, W. G.—*Some Records of Motor Truck Mine Haulage Costs and Experience.* [Abst. from a paper in the A. I. M. E. Bull. Detailed costs are given and discussed].—Engg. & Cont. Aug. 16 1916; p 160; pp 1½; 20c.

Molesworth, Guilford L.—*Pocket Book of Engineering Formulae.* [Information on civil, mechanical and electrical engineering work].—Spon & Chamberlain, N. Y.; book; pp 936*; $1.50.

Morrison, C. J.—*Belts—Their Selection and Care.* [Thoroughly practical information with no theory or formulas].—Engg. Mag. July 1916; p 567; pp 19*; 35c.

Richards, J. H.—*Federal Control of*

Water Power.—Mg. Cong. Jnl. Oct. 1916; p 135; pp 6; 35c.

Richards, Frank.—*Some Notes on Belting.* [On the proper size of belt to use; required tension; short belt drives, etc.]. —Pract. Eng. Nov. 15 1916; p 949; pp 2*; 20c.

Schaphorst, W. F.—*Economy of Solid Woven Belts.*—E. & M. J. Oct. 21 1916; p 747; pp 1¼*; 25c.

Taylor, M. T.—*Deep-Lead and Drift Mining in Victoria, Australia.* [Describes methods and details of methods used in going underground for gravel].—Mg. Mag. Oct. 1916; p 207; pp 12*; 50c.

Thomson, Lesslie R.—*High-Tension Transmission Lines and Steel Towers.* [Deals with operating costs, loads on the towers, etc].—Canadian Eng. Nov. 30 1916; p 445; pp 1¾*; 35c.

——— *Coal Miners' Pocketbook.* [Gives rules, principles, formulas and tables].—McGraw-Hill Co.; book; pp 1172*; $4.

——— *Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Discussion of a paper by Herbert Haas].—A. I. M. E. Bull. 1916; p 2213; pp 9; 35c.

——— *Indicators for Engines.* [Information on their construction, operation and use].—Pract. Eng. Nov. 1 1916; p 915; pp 3¾*; 20c.

——— *Power Plant of the Burro Mountain Copper Co., New Mexico.* [Discussion of a paper by Chas. Legrand].—A. I. M. E. Bull. Dec. 1916; p 2181; pp 2½; 35c.

——— *Purchase and Inspection of Leather Belting.* [From the American Machinist, being a general discussion of the subject].—E. & M. J. Sept. 23 1916; p 549; pp 1¼; 25c.

PART IV.

MISCELLANEOUS.*

CHAPTER XX.

MISCELLANEOUS COSTS

Alderson, G. F.—*A Reservoir and Pumphouse.* [Describes the construction of the installation and itemization of costs].—E. & M. J. Sept. 23 1916; p 547; pp 1¼*; 25c.

Capron, W. C.; Kuzell, C. R.—*Metallurgical Works Tramways.* [Reviews and discusses the use of different types of locomotives used about smelters and in some cases gives cost data on their operation].—E. & M. J. Oct. 7 1916; p 613; pp 8*; 25c.

Clapp, W. B.—*Motor Truck Development and Use in Southern California.* [A very complete table is given showing the cost of operating gasoline motor trucks at various mileages].—Mg. & Oil Bull. Sept. 1916; p 222; pp 6; 25c.

Clapp, W. B.—*Motor Truck Development.* [Abstract of a paper read before the A. I. of Mech. Eng. A table showing operating costs for trucks making various mileages per day is given].—Mg. Jnl. Nov. 4 1916; p 735; pp 1¼; 35c.

Clark, Earl S.—*Practical Costs.* [A talk and description of methods by which the actual cost of a product may more accurately be determined].—Industrial Management Dec. 1916; p 299; pp 6½*; 35c.

Cox, Thomas.—*Methods and Costs of Producing Crude Petroleum in California.* [Details are given with both tables, description and curves].—West. Engg. Sept. 1916; p 347; pp 6½*; 25c.

Foote, Frederick W.—*Estimating Construction Costs.* [The present status of estimating, with examples from practice based on the ratio of labor and materials entering into the work].—E. & M. J. Nov. 11 1916; p 857; pp 3¼; 25c.

Gochnauer, H. W.—*Pumping Costs with Diesel Engines.*—Engg. Rec. April 1 1916; 20c.

Gould, Harry J.—*A Simple and Efficient Cost Keeping System for Concrete Construction.* [Both forms and descriptive information are given].—Engg. & Cont. Aug. 30 1916; p 199; pp 3; 20c.

Haas, Herbert.—*Diesel Engines Versus Steam Turbines for Mine Power Plants.* [Compares the advantages and costs of operating each with respect to generating electricity. Details on fuel costs are given].—Bull. A. I. M. E. July 1916; p 1171; pp 13*; 35c.

Hood, B. B.—*Proper Current Densities.* [Curves are given from which the proper current density for both steel and copper transmission lines may be found, together with some costs related thereto].—Met. & Chem. Engg. Nov. 15 1916; p 571; pp 2¼*; 35c.

Hubbard, Charles L.—*Operating Costs in Combined Power and Heating Plants.*—Engg. Mag. Sept. 1916; p 869; pp 10; 35c.

Luscomb, H. T.—*How to Select Prime Movers for Industrial Electrical Generating Plants.* [A discussion and detailed data on generating electricity from steam plants].—Engg. Mag. Aug. 1916; p 705; pp 11½*; 35c.

Mason, J. K.—*How to Study Factory Efficiency.* [The methods and ideas are of a nature which makes them possible of application to the studying of efficiency in any operating body].—Engg. Mag. July 1916; p 542; pp 5½*; 35c.

McBride, W. G.—*Motor Truck Operation at Mammoth Collins Mine, Shultz, Arizona.* [Some costs of operation are given].—Bull. A. I. M. E. July 1916; p 1253; pp 4; 35c. M. & S. P. July 8 1916; p 45; pp 2; 20c.Mg. World July 22 1916; p 145; pp 1¾; 10c.

McDonald, P. B.—*Two Great Copper Mines Compared.* [Compares operations, production, etc., of the Calumet and Hecla and Nevada Con. Co.].—M. & S. P. Sept. 1916; p 391; pp 1½; 20c.

Musser, H. P.; Lamb, F. B.—*Practical Considerations Relative to Purchased Power.* [Gives curves and discussion comparing the advisability of purchased power over power generated at the mine].—Coal Age July 1 1916; p 15; pp 2*; 20c.

*Includes Miscellaneous Costs; Testing; Waste Disposition; Metallography; Law, Legislation and Taxation; Conservation; Government Ownership; Historical; Financial and Business Organization; Educational; Schools and Societies; General Miscellany.

Potter, A. A.; Buck, W. A.—*Internal Combustion Engines as Applied to Tractors.* [A paper read before the A. S. M. E.].—Pract. Eng. Dec. 15 1916; p 1031; pp 1½; 20c.

Richards, Frank.—*Some Notes on Belting.* [Abst. from Practical Engineer. Reviews faults in this method of power transmission and gives remedies for the same].—Comp. Air Sept. 1916; p 8099; pp 3½*; 20c.

Sale, A. J.—*Drilling and Analysis of Copper Ores.* [A general discussion of errors made from taking averages of churn-drill hole samples. Also speaks of the sulpho-cyanide assay of copper].—E. & M. J. July 8 1916; p 87; pp 3¼; 25c.

Sheldon, Walter H.—*Uniform Cost Systems.* [A general discussion of ideas now in practice in cost work].—National Lime Mfg. Assn. Bull. 18; pp 8;

Smith, George Otis; Lesher, C. E.—*Expert's View on Cost of Coal.* [Met. & Chem. Engg. Dec. 1 1916; p 631; pp 4¼; 35c. A paper read before the American Mg. Cong. advocating that costs should be more accurately kept and speaking of government operation of the mines].—C. Tr. Bull. Dec. 1 1916; p 25; pp 4; 25c.

Trautschold, Reginald.—*The Economics of Material Handling in Manufacturing Plants.* [Costs, details and curves of use in designing are given of standard practice in belt-conveying].—Engg. Mag. Aug. 1916; p 734; pp 13*; 35c.

——— *Analysis of Merrill Report on Water-Power.* [Comment on this government report is made saying that the information and conclusions are at error].—Elect. World July 1 1916; pp 20; 40c.

——— *Antimony Ore in Southern Rhodesia.* [Types of occurrences and methods for calculating shipments and cost of the same are explained].—S. Afr. Mg. Jnl. Aug. 19 1916; p 465; pp 1; 35c.

——— *Canadian Mining Corporation.* [Cost and other details of operation].—E. & M. J. Aug. 19 1916; p 348; pp 1¼; 25c.

——— *Construction and Operating Data on Diesel Engines.* [From a report of the committee on Prime Movers of the N. E. L. A., giving information for making estimates and curves for rapid calculation].—Pract. Eng. Nov. 15 1916; p 957; pp 1; 20c.

——— *Cost of Coal and Oil as Fuel.* [Abst. from Power. The cost of steam per pound is given, with the evaporation per pound of coal and B. T. U. per gallon of oil].—E. & M. J. July 8 1916; p 93; pp 1¾*; 25c.

——— *Pipe-Line Transportation of Petroleum.* [Full financial, cost, construction and operation accounts of various pipe lines in U. S. are given].—U. S. Federal Trade Commission Report; pp 467*.

——— *Prices of Machinery for Mines.* [The average prices for mine equipment are plotted in curves for separate classes of machinery, according to the size and capacity].—Coal Age July 1 1916; p 22; pp 3*; 20c.

TESTING

Abrams, D. A.—*A Method of Making Wear Tests of Concrete.* [A paper read before the American Soc. for Testing Materials. The method, machine and results of some tests are given].—Canadian Eng. Dec. 21 1916; p 512; pp 2¼*; 35c.

Addicks, Lawrence.—*Possibilities in the Wet Treatment of Copper Concentrates.* [The method tested and described here consists of roasting and then leaching].—Bull. A. I. M. E. Sept. 1916; p 1565; pp 9*; 35c; Met. & Chem. Engg. Dec. 1 1916; p 628; pp 3*; 35c.

Addicks, Lawrence.—*The Wet Treatment of Copper Concentrates.* [A paper read before the A. I. M. E. The ore is roasted and leached with sulphuric acid].—M. & S. P. Oct. 28 1916; p 630; pp 2¾*; 20c.

Arnou, G.; Portevin, A.—*Le Traitement Thermique du Bronze D'Aluminium a 10% D'Aluminium.* [On the thermic treatment and properties of bronze containing 10% aluminum].—Metallurgie, French April 1916; p 101; pp 15*; 75c.

Avery, Paul W.—*The Importance of Efficient Settling of Slime.* [Tables and curves showing the results of tests are reproduced and discussion of the results made].—M. & S. P. Nov. 18 1916; p 738; pp 4¼*; 20c.

Belaiew, N. I.; Goudstow, N. T.—*Sur La Limite Elastique de L'Acier.* [From Revue de la Soc. Russe de Metallurgie on the elastic limit and other physical properties of steel under varying conditions].—Metallurgie, French; p 116; pp 33*; 75c.

Belchic, George; Neal, Roy O.—*Surface Tension of Oil-Water Emulsions—A Flotation Theory.* [The surface tension of emulsions acid, alkaline and neutral, are given for varying amounts of different kinds of oils, as determined by the capillary method].—Mg. World Sept. 16 1916; p 487; pp 3*; 10c.

Benedicks, Carl.—*A New Thermo-Electric Method of Studying Allotropic Changes in Iron or Other Metals.* [Abst. from a paper read before the British Iron

& Steel Inst.].—Met. & Chem. Engg. Sept. 15 1916; p 337; pp 3; 35c.

Blickenderfer, F. C.—*A Comparative Test of the Marathon, Chilean and Hardinge Mills.* [Tests made at the Detroit Copper Co.'s plant, Morenci, Ariz.].—Bull. A. I. M. E. Aug. 1916; p 1333; pp 16*; 35c.

Campbell, Edward D.—*The Influence of Heat Treatment on the Thermo-Electric Properties and Specific Resistance of Carbon Steels.* [The results and nature of the tests are described and 8 curves are reproduced showing the results of these and ather tests].—Iron & Steel Inst. Adv. Copy 2; pp 18*; 50c.

Clayton, C. Y.—*Experiments from the Flotation Laboratory..* [Considerable of the text has to do with the nature of different oils. Description of laboratory flotation machines and tests made on different ores are also given].—Mo. School of Mines Bull. Aug. 1916; pp 40*.

Clayton, Charles Y.—*Sizing Flotation Concentrates.* [Abstract from an article in the Bulletin of the Missouri School of Mines, in which the results of tests made are given and discussed].—E. & M. J. Nov. 11 1916; p 867; pp ¾; 25c.

Clevenger, G. H.; Morgan, Harry.—*Atmospheric Decomposition of Cyanide Solutions.* [Detailed results, tabulated data, description and curves relating to the loss of cyanide resulting from the atmosphere].—M. & S. P. Sept. 16 1916; p 413; pp 12*; 20c.

Corse, W. M.; Comstock, G. F.—*Tests of Aluminum Bronze.* [Abst. from a paper read before the American Soc. for Testing Materials. Curves are shown, and it is stated that a double heat treatment increases the resistance to alternating stresses].—Iron Age July 13 1916; p 80; pp 1¼*; 30c.

Corse, W. M.; Comstock, G. F.—*Some Copper-Aluminum-Iron Alloys.* [Deals with the physical properties and nature of the alloy. A metallographic review of the alloys and the results of physical tests are given].—American Inst. of Metals Adv. Paper 14; pp 16*; 35c.

Dudley, Boyd, Jr.—*The Thermal Conductivity of Refractories.* [Data, tests and formulas for making computations with are given].—Amer. Electrochem. Soc. Adv. Paper 2; p 44*; 35c.

Eames, Luther B.—*Countercurrent Decantation.* [This article is also in the Bulletin of the Canadian Mg. Inst. The results of many tests are plotted into curves, showing the effect of many of the variables in the process on its efficiency].—A. I. M. E. Bull. Dec. 1916; p 2087; pp 15*; 35c.

Edmands, H. R.—*Some Notes on the Effect of Lead Salts and of Varying Degree of Alkalinity on the Solvent Power of Cyanide Solution for Gold.* [The results of tests are tabulated and described]. Jnl. Chamber of Mines West Aust. April 29 1916; p 63; pp 8; 75c.

Egloff, G.; Twomey, T. J.; Moore, Robert J.—*The Effect of Temperature and the Time Factor in the Formation of Gasoline in the Gas Phase at Constant Pressure.* [The testing was mostly done with a Pennsylvania crude petroleum oil].—Jnl. of Ind. & Engg. Chem. Dec. 1916; p 1102; pp 3¼*; 60c.

Feild, Alexander L.—*A Method for Measuring the Viscosity of Blast Furnace Slag at High Temperatures.* [The methods of testing and some results, with a description of the apparatus used are contained].—U. S. Bur. of Mines Tech. Paper 157; pp 29*; 15c.

Fischer, Sigfried, Jr. — *Contributions to the Knowledge of the Electrolysis Aqueous Solutions of Vanadium Salts.* [Gives the results of previous investigations, showing the behavior of vanadium and its salts under various conditions, specially in solution as an electrolyte].—American Electrochem. Soc. Adv. Paper 9, p 119; pp 45*; 35c.

Flaherty, B. G.—*Testing for Defective Insulators on High Tension Transmission Lines.* [Describes methods and apparatus used].—Proc. American Inst. of Elect. Eng. Aug. 1916; p 1221; pp 15*; 35c.

Fulton, A. D.; Parlett, R. C.—*The Effect of Surface Conditions Upon the Rate of Heat Transmission Through Steam Pipe Coverings.* [A thesis on the rate of heat transmission as noted from tests].—Wis. Eng. Nov. 1916; p 67; pp 8*.

Gahl, Rudolf.—*History of the Flotation Process at Inspiration, Arizona.* [Describes tests made and methods adopted with the results obtained in each. The paper is complete and gives details].—Bull. A. I. M. E. Sept. 1916; p 1627; pp 54*; 35c; Met. & Chem. Engg. Oct. 1 1916; p 393; pp 12½*; 35c.

Gillett, H. W.; James, G. M.—*Melting Aluminum Chips.* [Tests and methods of smelting, particularly in the electric furnace. Methods of testing and practical methods of procedure are given].—U. S. Bur. of Mines Bull. 108; pp 88; 20c.

Guess, G. A.; Lathe, F. E.—*An Investigation Into the Flowing Temperatures of Copper Mattes and of Copper-Nickel Mattes.* [A number of tests and investigations to determine the temperature at

which the two mattes will flow].—Bull. A. I. M. E. June 1916; p 1067; pp 6*; 35c.

Harger, F. D.—*Gas Analysis Applied to Brick Kilns.* [With the results of analysis and tests, utilization of waste heat and kiln economy are dealt with].—B. & C. Rec. Nov. 7 1916; p 803; pp 3; 35c.

Hicks, W. B.—*Simple Tests for Potash.* —M. & S. P. Aug. 5 1916; p 207; pp 1½; 20c.

Howland, H. P.—*Calculations with Reference to the Use of Carbon in Modern American Blast Furnaces.* [Discussion giving results of thermic tests and chemical reactions].—Bull A. I. M. E. July 1916; p 1245; pp 7; 35c.

Hubbard, Prévost; Jackson, F. H., Jr.— *The Results of Physical Tests of Road-Building Rock.* [Gives nature and results of tests with location of place from which sample was obtained].—U. S. Dept. of Agric. Bull. 370; pp 100*.

Hicks, W. B.—*Simple Tests for Potash.* [In general the test consists of flame coloration peculiarities].—American Fertilizer Sept. 16 1916; p 30; pp 1¾; 25c.

Hood, W. W.; Knox, G.; Evans, E. C. —*South Wales Coal Dust Experiments.* [A paper read before the South Wales Colliery Officials' Assn.].—Coll'y Guard. Aug. 11 1916; p 256; pp 1⅓*; 35c.

Johnston, A. M.—*Testing of Conveyor Belts.* [Abst. from a paper read before the South African Inst. of Eng.].—Met. & Chem. Engg. Sept. 1 1916; p 262; pp 2½*; 35c.

Jones, T. R.—*Pine Oil for Flotation Purposes.* [On the experiments made to ascertain the proper destructive distillation of Norway pine for flotation oils]. —Canadian Mg. Inst. Bull. Oct. 1916; p 882; pp 2; 35c.

June, Robert.—*Insuluminum.* [Tests and description of a new ferro-aluminum alloy with great heat resisting properties]. —Pract. Eng. Nov. 1 1916; p 924; pp 2*; 20c.

Karr, C. P.—*Report on a Series of Comparative Tests of Zinc-Bronze* (88 *Cu*-10 *Sn*-2 *Zn*) *Standard Test Bars.* [Deals entirely with physical tests and the results obtained].—American Inst. of Metals Adv. Paper 16; pp 12; 35c.

Kalmus, Herbert T.; Blake, K. B.— *Magnetic Properties of Cobalt and Cobalt-Iron Alloy.* [Describes a number of tests].—Canada Dept. of Mines No. 413; pp 18*.

Lasier, E. L.—*The Strength of Clamped Splices in Concrete Reinforcement Bars.* [Abstract of a paper read before the A. S. of Testing Materials. Curves and the results and nature of tests are described]. —Canadian Eng. Nov. 9 1916; p 373; pp 2¼*; 35c.

Legrand, Charles.—*Power Plant of the Burro Mountain Copper Co., New Mexico.* [Electric power generated by direct connection to Diesel engines is used].— Bull. A. I. M. E. Sept. 1916; p. 1531; pp 8*; 35c.

Lehman, George R.—*Ore Drawing Tests and the Resulting Mining Method of the Inspiration Consolidated Copper Co., Arizona.* [Describes the caving system and the tests which led to its adoption].—Bull. A. I. M. E. Sept. 1916; p 1501; pp 14*; 35c.

Lucht, F. W., Jr.—*A Study of the Compressor Indicator Diagram.* [Discusses theory principally].—Colo. School of Mines Qt'ly July 1916; p 16; pp 4*; 35c.

McDowell, J. Spotts.—*A Study of the Silica Refractories.* [Published by permission of the Massachusetts Inst. of Tech.].—Bull. A. I. M. E. Nov. 1916; p 1999; pp 57*; 35c.

McMillan, Franklin R.—*Time Tests of Concrete.* [A paper read before the Engineers' Club of St. Louis. Curves and the results of tests are given].—Canadian Eng. Sept. 14 1916; p 211; pp 4¼*; Sept. 21 1916; p 231; pp 4*; 70c.

Mann, Horace, T.; Clayton, C. Y.—*Cupellation Losses in Assaying.*, [Contains considerable tabulated data and curves].— Mo. School of Mines Bull. II:3; pp 60*.

Mathewson, C. H.; Thalheimer, E. M. —*Comparisons Between Electrolytic and Two Varieties of Arsenical Lake Copper with Respect to Strength and Ductility in Cold-Worked and Annealed Test Strips.* [The results are tabulated and the nature of each test is described].—Bull. A. I. M. E. July 1916; p 1185; pp 40*; 35c.

Megraw, Herbert A.—*The Flotation Process.* [On the theory, practice and testing of the process, with descriptions of installed plants].—McGraw-Hill Book Co.; book; pp 249*; $2.50.

Morse, H. W.; Tobelmann, H. A.— *Leaching Tests at New Cornelia, Arizona.* [Different methods and the results of tests are dealt with].—Bull. A. I. M. E. Sept. 1916; p 1593; pp 18*; 35c.

Morse, E. C.—*Electrolytic Precipitation.* [Gives details of equipment and methods used in operating and testing a combination cyanide and amalgamation system as regards depositing the gold and silver with electricity].—M. & S. P. Oct. 28 1916; p 622; pp 2¾*; 20c.

Mossman, R. L.—*Construction of Com-*

bustion Instruments. Describes methods for making gas analyzer and draft gage]. —Pract. Eng. Aug. 15 1916; p 697; pp 1½*; 20c.

Nebel, Merle L.—*Specific Gravity Tests of Illinois Coals.* [On the way in which the tests were made and the results as obtained with Illinois coals].—Univ. Ill. Bull. 89; pp 49*.

Nesbit, C. E.; Bell, M. L.—*Testing Refractory Fire Brick.* [Abstract of a paper read before the American Soc. for Testing Materials].—E. & M. J. Dec. 2 1916; p 967; pp ¾; 25c.

Nesbitt, C. E.; Bell, M. L.—*How to Conduct Fire Brick Tests.* [A paper read before the American Soc. for Testing Materials].—I. Tr. Rev. July 13 1916; p 71; pp 7*; 25c.

Nesbitt, C. E.; Bell, M. E.—*Practical Methods for Testing Refractory Fire Brick.* [A paper read before the American Society for Testing Materials].—B. & C. Rec. Aug. 1 1916; p 221; pp 4*; 35c. Chem. Engg. Aug. 15 1916; p 205; pp 7¾*. B. & C. Rec. Aug. 15; p 312; pp 4*; 35c.

Northrup, E. F.; Sherwood, R. G.—*New Method of Measuring Resistivity of Molten Materials: Results for Certain Alloys.* [Gives complete details of the method of procedure and results in some cases].—Jnl. Franklin Inst. Oct. 1916; p 77: pp 35*; 60c.

Pettibone, C. E.—*Testing Mine Rescue Apparatus.* [Abstract of a paper read before the National Safety Council. Advocates testing breathing apparatus with 5 ozs. internal pressure.]—Coal Age Nov. 25 1916; p 875; pp 2½*; E. & M. J. Dec. 2 1916; p 985; pp 2½*; 45c.

Phalen, W. C.; Hicks, W. B.—*Potash Salts in* 1915. [Chemical qualitative tests and methods of analysis are also given. The economic geology and occurrence of this mineral are reviewed, with an account of the progress made in developing the resource in this country].—Min. Res. of U. S. II:12; pp 39.

Phalen, W. C.; Hicks, W. B.—*Phosphate Rock in* 1915. [On the market, production, methods of making soluble phosphates and chemical tests for the mineral].—Min. Res. of U. S. II:18; pp 18.

Porter, J. B.—*An Investigation of the Coals of Canada.* [Tests conducted at McGill Univ. with reference to the economic properties of the coal].—Canada Dept. of Mines Form No. 338; pp 194*.

Price, William B.; Davidson, Philip.—*Physical Tests on Common High Brass Taken Parallel and at Right Angles to the Direction of Rolling.* [The results and nature of the physical tests under varying conditions with a metallographic review is given].—American Inst. of Metals Adv. Paper 12; pp 32*; 35c.

Pringle, L. B.—*Chart for Flotation Testing.* [A reproduction of the chart, with explanation and formulas is given]. —E. & M. J. Oct. 21 1916; p 749; pp 1¾*; 25c.

Ralston, O. C.; Allen, Glen L.—*The Flotation of Oxidized Ores.* [Discusses problems encountered in flotating different kinds of oxide ores. The results of some tests are given].—Mg. World July 22 1916; p 137; pp 3¼; 10c.

Rawdon, Henry S. — *Standard Test Specimen of Zinc-Bronze.* [Relations of mechanical properties to microstructure are taken up in detail].—Trans. American Inst. of Metals Vol. IX; p 60; pp 22*; 35c.

Robinson, Heath M.—*Ozokerite in Central Utah.* [Treats on the geology, genesis and tests for determining the mineral with descriptions of properties and methods used].—U. S. G. S. Bull. 641-A; pp 16*.

Rosa, E. B.; Vinal, G. W.—*Volume Effect in the Silver Voltameter.*—U. S. Bur. of Stand. Sci. Paper 283; pp 11*; 15c.

Rose, Hugh. — *Metallurgical Experiments at Santa Gertrudis Mill, Pachuca, Mexico.* [Abst. from A. I. M. E. Bull. Flotation and electrolytic regeneration of cyanide are discussed].—E. & M. J. Aug. 5 1916; p 263; pp 2*; 25c.

Samuel, J. Moore.—*Determination of Dust Losses at the Copper Queen Reduction Works.* [Methods of testing and formulas used in computation are given]. —Bull. A. I. M. E. June 1916; p 1079; pp 20*; 35c.

Shellshear, W.—*Flotation at the Mt. Morgan Mine, Queensland, Australia.* [A paper read before the Aust. Inst. of Mg. Eng. Operations are described though tests are given more consideration].—Mg. World Oct. 28 1916; p 741; pp 3; Dec. 2 1916; p 947; pp 1½; 20c.

Silsbee, Francis B.—*A Study of the Inductance of Four-Terminal Resistance Standards.* [Laboratory methods for measuring resistance of less than 1 ohm]. —U. S. Bur. of Stand. Sci. Paper No. 281; pp 48*; 25c.

Simons, Theodore.—*Efficiency of Compressed Air Installations..* [Formulas and other theoretical data and information regarding losses due to leakage in the air pipe-line].—E. & M. J. Dec. 23 1916; p 1087; pp 3¼*; 25c.

Sims, Clarence E.; Ralston, O. C.—*The*

Electrolytic Recovery of Lead from Brine Leaches. [The results of experimental work and operations with this method of procedure are given].—Amer. Electrochem. Soc. Adv. Copy 11; p 185; pp 15; 35c.

Smith, H. H.—*The Theory of Flotation.* [Treats on laboratory experiments on flotation phenomena].—M. & S. P. July 1 1916; p 16; pp 3½*; 20c.

Staley, Homer F.; Beecher, Milton F.—*Practical Handling of Iowa Clays with Application of Ceramic Principles.* [Methods of prospecting and testing the clay bodies are given, as well as descriptions of methods of manufacturing and properties of the burned product].—Iowa State College Bull. 43 pp 48*.

Stander, H. J.—*The Flotation Process.* [A text with subjects in logical sequence for the student and others. Various methods are described in detail, methods of testing, costs, practice, etc., are dealt with separately].—Mining World Co.; book; pp 175*; $3.

Stander, H. J.—*The Function of Oil and Acid in Flotation.* [Describes tests and theory bringing out the principles underlying flotation].—Mg. World Aug. 19 1916; p 317; pp 3¼*; 10c.

Stansbie, J. H.—*Elementary Practical Metallurgy for Technical Students and Others.* [The book is meant for use in connection with laboratory study. Mechanical testing of non-ferrous metals and alloys is treated on].—P. Blakiston's Sons & Co., Philadelphia; book; pp 151*; $1.40.

Stead, J. E.—*Influence of Some Elements on the Mechanical Properties of Steel.* [Gives the results of tests made on steels containing small amounts of other metals as copper, tin, silicon, phosphorus, sulphur, etc.].—Iron & Steel Inst. Adv. Copy; pp 91*; 50c.

Stead, J. E.—*Notes on the Effect of Blast-Furnace Gases on Wrought Iron.* [Tests of various kinds were made to determine this effect].—Iron & Steel Inst. Adv. Copy 7C; pp 7*; 50c.

Taggart, Arthur F.—*The Reclamation of Brass Ashes.* [Methods of concentration are given in detail, with results of tests].—A. I. of Metals Adv. Paper No. 5; pp 12*; 35c.

Taylor, Guy B.; Cope, W. C.—*Sensitiveness to Detonation of Trinitroluene and Tetranitromethylanilin.* [Describes method and apparatus for making test, with some results obtained].—U. S. Bur. of Mines Tech. Paper 145; pp 13; 15c.

Thornton, W. M.—*Influence of Pressure on the Electrical Ignition of Methane.* [A paper read before the British Assn., Sec. G, dealing with experimental work. Curves are shown].—Coll'y Guard. Sept. 15 1916; p 503; pp 2*; 35c.

Van Name, R. G.; Hill, D. U.—*On the Rates of Solution of Metals in Ferric Salts and in Chromic Acid.* [A discussion and description of experimental work. The nature of the different experiments and results obtained are given].—American Jnl. of Sci. Oct. 1916; p 301; pp 31½*; 60c.

Watkinson, W. H.—*Starting Diesel Engines with Low Compression.* [A paper read before Sec. G of the British Assn. Treats on experiments made to show the possibility of running Diesel engines with low-compression].—Engg. Sept. 22 1916; p 290; pp 1*; 35c.

Watts, A. S.—*The Feldspars of New England and North Appalachian States.* [Goes into the lithology of feldspar rocks in general and gives nature of deposits by states. Methods of testing for quality and concentration of rock are given].—U. S. Bur. of Mines Bull. 92; pp 181*; 35c.

Wells, Roger C.—*Experiments on the Extraction of Potash from Wyomingite.* [The mineral contains principally potash and alumina as a silicate].—U. S. G. S. Prof. Paper 98-D; pp 4.

Whitaker, W. A.; Belchic, George; Neal, Roy; Van Velzer, H. L.—*Flotation Experiments on a Joplin Tailing.* [The results from using a number of different oils are tabulated and discussed. Testing was done with 400-gm. samples].—Met. & Chem. Engg. Aug. 1 1916; p 131; pp 7; 35c.

White, H. A.—*The Manganese Silver Problem.* [Discussion of a paper by W. Neal on why low extraction only can be obtained in extracting silver in the presence of manganese].—Jnl. Chem. Met. & Mg. Soc. of S. Afr. Sept. 1916; p 39; pp 2¼; 50c.

Wilkins, F. Trevor.—*Diesel Engine Trials.* [A paper read before the Inst. of Mech. Eng., England. Details of tests of various kinds are given].—Engg. Oct. 27 1916; p 422; pp 4*; 35c.

Wolf, Fred L.; Burr, Robert B.—*Tests of Natural Gas Fired, Brass Melting Furnaces Under Factory Operating Conditions.*—Trans. American Inst. of Metals Vol. IX; p 343; pp 24*; 35c.

Wright, W. H.—*Flotation Experiments, Department of Research and Testing, Colorado School of Mines.* [Tables and curves showing the results of tests made on a lead-zinc-gold-silver-copper ore with many different oils].—Colo. School of Mines Qt'ly April 1916; p 1; pp 25*; 35c.

Young, George J.—*The Selection of a Method for Ore Treatment.* [On methods of testing and investigating new ores for refining treatment].—Met. & Chem. Engg. Sept. 15 1916; p 297; pp 2¾; 35c.

Young, S. W.; Moore, Neil Preston.—*Laboratory Studies on Secondary Sulphide Ore Enrichment.* [Confined to copper sulphides and the generation of hydrogen sulphide].—Eco. Geol. June 1916; p 349; pp 17; 60c.

Young, Ralph A.—*Testing of Dredge Bucket Pins.* [On the use of carbon-steel instead of more expensive alloyed steels].—E. & M. J. Aug. 26 1916; p 377; pp 2¼*; 25c.

——— *A Comparative Test of the Marathon, Chilean and Hardinge Mills.* [Discussion].—A. I. M. E. Bull. Dec. 1916; p 2184; pp 13½; 35c.

——— *An Interesting Dynamometer Journal-Friction Test.* [A test to determine the friction in the old type of bearing on mine cars and the newer types of roller bearings].—Coal Age Dec. 16 1916; p 1000; pp 1½*; 20c.

——— *Description of the Laboratories of the Mines Branch of the Department of Mines, Ottawa, Ontario.* [Laboratories for investigating fuels, milling and metallurgical methods, ceramics, metallography, etc., are described in detail].—Canada Mines Branch Bull. 13; pp 111*.

——— *Hardness Tests.* [A report of a committee appointed by the Inst. of Mech. Eng., England, on hardness tests on hardened journals and pins].—I. Tr. Rev. Dec. 8 1916; p 696; pp 1⅛; 35c.

——— *Indicators for Engines.* [Information on their construction, operation and use].—Pract. Eng. Nov. 1 1916; p 915; pp 3¾*; 20c.

——— *Indicator Diagrams from Air Compressors.* [From Power, showing reproductions from several indicator cards].—E. & M. J. Dec. 16 1916; p 1046; pp 1*; 25c.

——— *Indicators.* [Indicators for testing the pressure and stroke of engines are described, various makes being included].—Pract. Eng. Dec. 1 1916; p 987; pp 2¾*; 20c.

——— *Leaching Tests at New Cornelia Plant, Arizona.* [Discussion by members of a previous paper].—A. I. M. E. Bull. Dec. 1916; p 2151; pp 8; 35c.

——— *Principos y Applicaciones de los Indicadores para Maquinas de Vapor.* [Principals of application for the steam indicator].—Ing & Contratista Oct. 1916; p 93; pp 4¼*; 35c.

——— *The Influence of Silver Contents on Treatment of Gold Residues.* [From the W. A. Chamber of Mines Jnl., in which the results of tests made by the Great Boulder Perseverence Gold Co. are given and show that it is easier to dissolve the gold when the silver content is low].—Mg. & Engg. Rev. Nov. 6 1916; p 35; pp 1; 35c.

——— *Water Sampling in Creosote Oil; Relation of Amount of Preservation and Depth of Penetration to the Resistance of Materials Against Decay; Compilation of Service Test Records.*—American Rwy. Eng. Assn. Bull. 184; pp 36*; $1.

——— *Winona Copper-Leaching Test Plant.* [The Slater process is used. A 5-ton plant using hydrometallurgy and electrometallurgy is described and operating costs given].—E. & M. J. Nov. 25 1916; p 929; pp 1½; 25c.

WASTE: SLAG, TAILINGS, FUMES,

Eddy, Lewis H.—*The Argonaut Mine, California.* [On the installation of a dam for storing tailings, power pumps and experimental work for flotation].—E. & M. J. Aug. 5 1916; p 265; pp 2¾*; 25c.

Hutzel, H. F.—*Chart for Determining Heat Loss in Flue Gases.* [Taken from an article in Power. Description and formulas are given, together with a reproduction of the chart].—E. & M. J. Dec. 23 1916; p 1091; pp 1¼*; 25c.

Leddell, W. A.—*Slag Lining for Launders.* [The slag is cast into channel shapes for lining the tailings launder so as to make it more resistive to acid].—E. & M. J. Oct. 7 1916; p 644; pp 1¾*; 25c.

Lomas, Garcia.—*Recuperacion de Humos por Precipitation Electrica.* [The recovering of fumes for electrical precipitation].—Revista Minera July 1 1916; p 317; pp 1¾; 35c.

Pawloff, M. A.—*Properties of Blast Furnace Slags and Methods of Calculating Charges.*—Rev. Mét. No. 13 1916; p 50; pp 11; $1. Jnl. Soc. Chem. Ind. Nov. 15 1916; p 1111; pp 1; 75c.

——— *Basic Phosphate Fertilizer as a By-Product in Iron Smelting.* [A method used in connection with open-hearth smelting].—Chem. Eng. & Mfg. Aug. 1916; p 68; pp 1*; 30c.

——— *Boilers Heated by Coke-Oven Gas.* [On equipment and installations for following this practice. Drawings are given with description].—I. & C. Tr. Rev. Sept. 8 1916; p 280; pp 1⅓*; 35c.

METALLOGRAPHY

Arnou, G.; Portevin, A.—*Le Taitement Thermique du Bronze D'Aluminium a 10% D'Aluminium.* [On the thermic treatment and properties of bronze containing 10% aluminum].—Metallurgie, French April 1916; p 101; pp 15*; 75c.

Benedicks, Carl.—*A New Thermo-Electric Method of Studying Allotropic Changes in Iron or Other Metals.* [Abst. from a paper read before the British Iron & Steel Inst.].—Met. & Chem. Engg. Sept. 15 1916; p 337; pp 3; 35c.

Broniewski, M. Witold.—*Sur la Scructure des Alliages Cuivre-Zinc at Ciuvre-Etain.* [A metallographic study on copper-zinc and copper-tin alloys].—Metallurgie French Nov. 1915; p 961; pp 29*; 50c.

Brearley, A. W.—*Some Properties of Ingots.* [A paper read before the Iron and Steel Inst., London, on crystalline structure and its effects].—I. & C. Tr. Rev. Sept. 22 1916; 344; pp 6*; 35c.

Brearley, A. W.—*Some Properties of Ingots.* [A metallographic review of the peculiarities of ingots made under varying conditions. Reproductions of the structure of the steel are shown].—Iron & Steel Inst. Adv. Copy 1; pp 34*; 50c; Iron Age Oct. 26 1916; p 943; pp 4*; 30c.

Brokaw, Albert D.—*A Stage Attachment for the Metallographic Microscope.* —Jnl. of Geol. Nov. 1916; p 718; pp 2*; 75c.

Bullens, Denison K.—*Steel and Its Heat Treatment.* [Omits intricate formulas and questionable theory].—Wiley & Sons; book; pp 431*; $3.75.

Campbell, William.—*Recent Progress in Metallography.* [With some description the greater part is a bibliography of literature].—Amer. Inst. of Metals Adv. Copy 17; pp 63; 35c.

Caesar, G. V.; Gerner, G. C.—*The Annealing Properties of Copper at Temperatures Below 500 Degrees with Particular Reference to the Effect of Oxygen and of Silver.*—A. I. of Metals Adv. Paper No. 6; pp 43*; 35c.

Comstock, George F.—*A Method of Distinguishing Sulphides from Oxides in the Metallography of Steel.* [Points out places where many mistakes are today being made in the use of this art for minutely studying the structure of steel]. —A. I. M. E. Bull. Dec. 1916; p 2103; pp 8*; 35c.

Comstock, George F.—*The Presence of Alumina in Steel.* [A paper read before the American Foundrymen's Assn. This paper points out that alumina may be distinguished from non-metallic inclusions and shows how it may be distinguished].— I. Tr. Rev. Sept. 21 1916; p 563; pp 5*; 25c. Iron Age Sept. 19; p 582; pp 2¾*; 30c.

Corse, W. M.; Comstock, G. F.—*Some Copper-Aluminum-Iron Alloys.* [Deals with the physical properties and nature of the alloy. A metallographic review of the alloys and the results of physical tests are given].—American Inst. of Metals Adv. Paper 14; pp 16*; 35c.

Edwards, C. A.—*The Physical Chemical Properties of Steel.* [A treatise on the metallography, properties and nature of steel].—Charles Griffin & Co., Strand, E. C.; book; pp 200*; $3.

Fahrenwald, Frank A.—*The System Tungsten-Molybdenum.* [Treats on the metallography, physical characters and thermic properties of tungsten-molybdenum alloys].—Bull. A. I. M. E. June 1916; p 1049; pp 7*; 35c.

Fechtchenkotchopovsky, S. A.—*Cementation of Iron.*—Rev. Soc. Russe de Metall. 1914; No. 1; p 245; pp 65.

Jeffries, Zay.—*Grain Growth Phenomena in Metals.*—Bull. A. I. M. E. Nov. 1916; p 2063; pp 11*; 35c.

Harbord, F. W.; Hall, J. W.—*Metallurgy of Steel.* [An up-to-date review of practice in steel metallurgy].—Lippincott Co.; book; pp 933; $12.50.

Harley, Andrew. — *Testing Malleable and Cast Steel.* [An address before the British Foundrymen's Assn. An English view on the scientific manufacture of small castings].—I. Tr. Rev. July 20 1916; p 121; pp 7*; 25c.

Hayward, Carle R.—*The Effect of Sulphur on Low-Carbon Steel.* [A review of metallographic tests, giving both the structure and change in physical properties due to the presence of sulphur].— Bull. A. I. M. E. Oct. 1916; p 1841; pp 10*; 35c.

Howe, Henry M. — *Recrystallization After Plastic Deformation.* [Deals with recrystallization after the cold-working of brass].—Bull. A. I. M. E. Oct. 1916; p 1851; pp 10*; 35c.

Janssen, W. A.—*Use of Titanium in Steel Castings.* [A paper read before the American Foundrymen's Assn. telling of some of the advantages of ferro-titanium as a deoxidizer].—I. Tr. Rev. Sept. 14 1916; p 507; pp 5*; 25c.

Jeffries, Zay. — *Tungsten-Molybdenum Equilibrium Diagram and System of Crystallization..* [A method for the determination of the melting point of metals and alloys with high fusion points].—

Bull. A. I. M. E. July 1916; p 1225; pp 12*; 35c.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [Deals with the effects of nickel, titanium and vanadium on these irons with respect to physical and metographical properties].—Met. & Chem. Engg. Dec. 1 1916; p 642; pp 5*; 35c.

Johnson, J. E., Jr.—*The Chemical and Physical Properties of Foundry Irons.* [The effects of several different elements on iron are treated separately].—Met. & Chem. Engg. Nov. 15 1916; p 588; pp 8*; 35c.

Mathewson, C. H.—*Co-operation with the Metal Industries in Metallographic Work at the Hammond Laboratory of the Sheffield Scientific School, Yale University.*—A. I. of Metals Adv. Paper No. 1; pp. 20; 35c.

Merica, P. D.; Woodward, R. W.—*The Failure of Structural Brasses.* [Deals with the nature of the failure and properties of brasses].—Trans. American Inst. of Metals Vol. IX; p 298; pp 35*; 35c.

Merica, Paul D.; Karr, C. P.—*The Initial Stress Produced by the Burning-In of Manganese Bronze.*—A. I. of Metals Adv. Paper No. 8; pp 8*; 35c.

Pack, Charles.—*Aluminum Die Casting a Commercial Achievement.* [Detailed information methods of casting aluminum].—Trans. American Inst. of Metals Vol. IX; p 144; pp 14*; 35c.

Portevin, M. Albert.—*Influence du Temps de Chauffage Avant la Trempe sur les Resultats de Cette Operation.* [The influence of temperature changes with respect to steel and iron].—Metallurgie, French Feb. 1916; p 9; pp 70*; 50c.

Price, William B.; Davidson, Philip.—*Physical Tests on Common High Brass Taken Parallel and at Right Angles to the Direction of Rolling.* [The results and nature of the physical tests under varying conditions with a metallographic review is given].—American Inst. of Metals Adv. Paper 12; pp 32*; 35c.

Rawdon, Henry S.—*Note on the Occurrence and Significance of Twinned Crystals in Electrolytic Copper.*—A. I. of Metals Adv. Paper No. 13; pp 12*; 35c.

Rawdon, Henry S.—*Standard Test Specimen of Zinc-Bronze.* [Relations of mechanical properties to microstructure are taken up in detail].—Trans. American Inst. of Metals Vol. IX; p 60; pp 22*; 35c.

Sauveur, Albert.—*Detecting Alumina Inclusions in Steel.* [A microscopic investigation as to the occurrence and appearance of alumina particles].—Iron Age July 27 1916; p 180; pp 2*; 30c. I. Tr. Rev. July 27; p 179; pp 2*; 25c.

Sherry, Ralph H.—*Crystallization in Cold Worked Steel.* [A paper read before the Society of Automobile Engineers].—Iron Age July 13 1916; p 76; pp 3*; 30c.

Touceda, Enrique.—*Normal Fracture of Good Malleable Iron.* [A paper read before the American Foundrymen's Assn. on the effect of haphazard fractures and the burning out of surface carbon, showing an erroneous theory regarding the strength].—Iron Age Sept. 14 1916; p 576; pp 2*; 30c.

Tschishewsky, N.; Herdt, A.—*Iron-Boron and Iron-Carbon Alloys.* [A paper from the Journal of the Russian Met. Soc. Gives the properties, method of preparation and equilibrium curve for the alloys].—Iron Age Aug. 24 1916; p 396; pp 2*; 30c.

Worthing, A. C.—*Tungsten-Molybdenum Equilibrium Diagram and System of Crystallization.* [Discussion of a paper by Zay Jeffries].—A. I. M. E. Bull. Dec. 1916; p 2231; pp 1; 35c.

——— *Description of the Laboratories of the Mines Branch of the Department of Mines, Ottawa, Ontario.* [Laboratories for investigating fuels, milling and metallurgical methods, ceramics, metallography, etc., are described in detail].—Canada Mines Branch Bull. 13; pp 111*.

LAW, LEGISLATION, TAXATION

Ball, Max. W—*Petroleum Withdrawals and Restorations Affecting the Public Domain.* [Gives the law controlling petroleum lands, with information on withdrawals and restorations. Maps, by states, are given, showing the areas affected].—U. S. G. S. Bull. 623; pp 425; $1.20.

Brooks, Alfred H.—*The Alaskan Mining Industry in* 1915. [Reviews the production and conditions in different districts, with information on coal and metal mining law].—U. S. G. S. Bull. 642-A; pp 71*.

Brooks, Alfred H.—*Mineral Resources of Alaska.* [Descriptions of mines and deposits reviewing their production, geology and geography. The coal mining lease laws are also spoken of].—U. S. G. S. Bull. 642; pp 279*.

Brothers, Charles S.—*Mining and Prospecting in National Forests.* [Reviews the laws and rights of the miner and prospector in the National Forest reserves].—Mg. & Oil Bull. July 1916; p 185; pp 3*;

25c; Mg. World Sept. 16 1916; p 493; pp 1¾; 10c.

Colby, William E.—*The Extra-Lateral Right—Shall It Be Abolished?* [Discussion].—M. & S. P. Nov. 11 1916; p 701; pp 4; 20c.

Gardner, E. D.—*The Antecedent Mineral Discovery Requirement.* [Discusses laws regarding mineral land location.]—Bull. A. I. M. E. Sept. 1916; p 1693; pp 15; 35c.

Gregory, S.—*Agreement Between Minerals Separation and the Inspiration-Anaconda Companies.* [Gives the final conclusions arrived at as a result of the lawsuit in regard to flotation equipment].—M. & S. P. Sept. 16 1916; p 424; pp 2; 20c.

Hamilton, Fletcher.—*California's Water Infiltration Law.* [In regard to the infiltration of oil-sands with water].—Mg. Cong. Jnl. Oct. 1916; p 131; pp 4; 35c.

Hills, Victor G.—*The Antecedent Mineral Discovery Requirement.* [Discussion of a paper by E. D. Gardner, with respect to the location of claims].—A. I. M. E. Dec. 1916; p 2200; pp 3; 35c.

Hoover, Theodore J.—*Concentrating Ores by Flotation.* [Third edition describing different processes, patents, litigation, history, etc.].—Mg. Mag.; book; pp 320*; $3.75.

Kotze, R. N.—*Far East Rand and Suggested Changes in the Gold Law.* [Abst. from a South African government report, taking up operations and production with respect to suggested law].—Mg. Mag. Aug. 1916; p 75; pp 9*; 50c.

Manning, Van H.—*What Can Uniform Mining Laws Hope to Accomplish.* [A paper read before the American Mg. Cong., Chicago].—E. & M. J. Dec. 2 1916; p 973; pp 3¾; 25c. M. & S. P. Dec. 2 1916; p 796; pp 5; 20c.

McCullough, Ernest.—*Practical Surveying for Surveyors' Assistants, Vocational and High Schools.* [In a practical way what a surveyor is supposed to do, methods and surveying laws are explained].—Van Nostrand Co.; book; pp 400*; $2.

Searls, R. M.—*An Extra-Lateral Problem.* [Points out a peculiar position controlled by this law].—M. & S. P. July 29 1916; p 160; pp 1½*; 20c.

Schwarz, A.—*Interesting Points in the U. S. District Court Flotation Decision.* [Correspondence].—Met. & Chem. Engg. Nov. 15 1916; p 553; pp 1¾; 35c.

Thompson, J. W.—*Abstracts of Current Decisions on Mines and Mining Reported from January to April* 1916.—U. S. Bur. of Mines Bull. 126; pp 90; 20c.

Varadaiya, M.—*A Synopsis of the Rules and Orders Relating to the Exploitation of Minerals in Mysore, India.* [Nearly all mining lands are owned by the government and can only be leased. The appendices contains forms of application for the same].—Mysore Dept. of Mines & Geol. Bull. 8; pp 76; 65c.

——— *Actions Toward Revision of Mining Law.* [Ballots and comment by several of the scientific and mining societies of United States].—Mg. & Met. Soc. of Amer. Bull. Oct. 31 1916; p 220; pp 26; 35c.

——— *Baku Russian Petroleum Co., Russia.*—Petro. World Sept. 1916; p 426; pp 3; 35c.

——— *Colorado Scientific Society on Mining Law Revision.*—E. & M. J. Dec. 2 1916; p 989; pp 1; 25c.

——— *Gold Mining in War Time.* [A review of the conditions, prices and taxes in West Australia].—Monthly Jnl. Chamber of Mines West Aust. June 30 1916; p 108; pp 4½; 35c.

——— *Hyde Flotation Suit.* [The hearing of the James M. Hyde vs. Minerals Separation case before the Supreme Court].—Met. & Chem. Engg. Nov. 15 1916; p 555; pp 2; 35c.

——— *Minerals Separation Wins Supreme Court Decision Against Hyde.* [Official account of the Supreme Court's findings and decision in the case].—Mg. World Dec. 23 1916; p 1065; pp 3½; 10c. E. & M. J. Dec. 23; p 1107; pp 1¼; 25c.

——— *Revision of the Mining Law in U. S.* [A referendum inaugurated by the Mining & Metallurgical Soc. of America].—E. & M. J. Oct. 14 1916; p 719; pp 4; 25c.

——— *Revision of the Mining Law.* [Proposals of the Mining & Met. Soc. of America regarding the law, with correspondence and discussion by members].—Bull. Mg. & Met. Soc. of Amer. Sept. 30 1916; p 185; pp 19; 35c.

——— *Rhodesia Chamber of Mines, Annual Report* 1915. [Questions brought up during the year are spoken of with accounts of the production of various metals and a review of the labor bureau].—Rhodesia Chamber of Mines, 1915 Report; pp 71.

——— *Wilmington Decision in Miami Flotation Suit.* [A report on the proceedings and evidence given in the case].—Met. & Chem. Engg. Oct. 15 1916; p 441; pp 7; 35c. Mg. World Oct. 14; p 667; pp 1½; 10c.

CONSERVATION

Arnold, Ralph.—*Conservation of the Oil and Gas Resources of the Americas.* [Reviews the deposits and possibilities of each country separately].—Eco. Geol. June 1916; p 299; pp 28; 60c.

Ball, Max W.—*Adequate Acreage and Oil Conservation.* [This discussion of situations applies to natural gas as well as oil].—American Mg. Cong. Paper; pp 12; 35c.

Ball, Max W.—*Adequate Acreage and Oil Conservation.* [A paper read before the American Mining Congress].—Cal. Derrick Dec. 1916; p 3; pp 5; 25c.

Cady, Gilbert H.—*Coal Resources of District VI.* [Describes details of the formation of small areas separately].—Ills. Geol. Surv. Bull. 15; pp 94*.

Cooper, S. G.—*The Production and Use of Power and Its Relation to Fuel Economy.*—I. & C. Tr. Rev. Aug. 4 1916; p 125; pp 1; 35c.

Evans, David.—*Nationalization of Coal Mines.* [A discussion of the subject from the point of view that this will be necessary because of the conflicts now starting between labor and capital in Great Britain].—I. & C. Tr. Rev. Sept. 8 1916; p 271; pp 2½; 35c.

Huac, A. J.—*The Value of a Clay Deposit.* [Formulas are given and their application explained and include all formulas needed in figuring the value of a deposit which was formerly done mostly from experience].—B. & C. Rec. Sept. 19 1916; p 499; pp 2½*; 35c.

Lehfeldt, R. A.—*The Valuation of Mines.* [Derives formulas and gives a curve of use in solving valuation questions].—Jnl. Chem., Met. & Mg. Soc. July 1916; p 1; pp 3⅓*; 85c.

Lewis, Robert S.—*Amortization and Depreciation.* [Deals with methods for computing the same and states that omission of the same in computing costs is a great mistake which is often made].—M. & S. P. Sept. 23 1916; p 456; pp 3*; 20c.

Lewis, James O.; McMurray, W. F.—*The Use of Mud-Laden Fluid in Oil and Gas Wells.* [Describes the system and other methods of details in drilling for the purpose of stopping waste of gas in drilling for oil wells].—U. S. Bur. of Mines Bull. 134; pp 86*; 25c.

Louis, Henry.—*Waste in Coal Production.*—Jnl. Soc. Chem. Ind. July 31 1916; p 770; pp 3½; 50c.

Mairet, F. F.—*Fuel Economy at Collieries.* [A paper read before the Midland Inst. of Mg., Civil & Mech. Eng.].—I. & C. Tr. Rev. July 21 1916; p 70; pp 2*. Coll'y Guard, July 21 1916; p 114; pp 2½*; 35c.

McArthur, J. D.—*The Utilization of Coal to the Best Advantage in the Interests of National Economy.* [A paper read before the Inst. of Marine Engineers, England].—I. & C. Tr. Rev. Nov. 10 1916; p 582; pp 2; 35c.

McMurray, W. F.; Lewis, James O.—*Underground Wastes in Oil and Gas Fields and Methods of Prevention.* [On the prevention of conditions which reduce production, such as allowing water to enter the sand strata, etc.].—U. S. Bur. of Mines Tech. Paper 130; pp 28*.

Phalen, W. C.—*The Conservation of Phosphate Rock in the United States.* [Published by permission of the U. S. G. S. A detailed description of the deposits and methods of operation in U. S.].—Bull. A. I. M. E. Nov. 1916; p 1901; pp 34*; 35c.

Pierce, H. J.—*Federal Water-Power Legislation.* [An address before the National Elect. Light Assn. on the conservation of coal and oil by using hydro-electric power and the lack of congress to provide for such development].—U. S. Senate Document 468; pp 12.

Richards, J. H.—*Federal Control of Water Power.*—Mg. Cong. Jnl. Oct. 1916; p 135; pp 6; 35c.

Smith, Lowry.—*Penetration of Preservatives.* [From "Railway Maintenance Engineer." A table is given of specific data].—Wood-Preserving Sept. 1916; p 66; pp 2¼; 35c.

Varadaiya, M.—*A Synopsis of the Rules and Orders Relating to the Exploitation of Minerals in Mysore, India.* [Nearly all mining lands are owned by the government and can only be leased. The appendices contains forms of application for the same].—Mysore Dept. of Mines & Geol. Bull. 8; pp 76; 65c.

——— *American Smelting & Refining Co.'s Semi-Annual Report.* [Contains the company's balance sheet for the period and a general description of operations].—Mg. World Sept. 16 1916; p 495; pp 1½; 10c.

——— *British Association for the Advancement of Science.* [A report of the Fuel Economy Committee, dealing with the use, consumption and conservation of coal in different industries]. — Coll'y Guard. Sept. 15 1916; p 499; pp 4*. I. & C. Tr. Rev. Sept. 15; p 299; pp 5*; 35c.

——— *Kleinfontein, South Africa.* [Deals with the future of the district and

reviews the production, financial information and general mine operations in the district].—S. Afr. Mg. Jnl. Aug. 12 1916; p 440; pp 1¼*; 35c.

——— *Mixing Tar with Creosote.* [On opinions of the use of the mixture as a timber preservative].—Rwy. Rev. June 10 1916; pp 1¼; 20c.

——— *Pipe-Line Transportation of Petroleum.* [Full financial, cost, construction and operation accounts of various pipe lines in U. S. are given].—U. S. Federal Trade Commission Report; pp 467*.

——— *Scientist's Report on Fuel Economy.* [A report of the Fuel Economy Committee of the British Assn. for the Advancement of Sci.].—C. Tr. Bull. Oct. 16 1916; p 40; pp 3; 25c.

——— *Water Sampling in Creosote Oil; Relation of Amount of Preservation and Depth of Penetration to the Resistance of Materials Against Decay; Compilation of Service Test Records.*—American Rwy. Eng. Assn. Bull. 184; pp 36*; $1.

GOVERNMENT OWNERSHIP

Smith, George Otis; Lesher, C. E.—*Expert's View on Cost of Coal.* [Met. & Chem. Engg. Dec. 1 1916; p 631; pp 4¼; 35c. A paper read before the American Mg. Cong. advocating that costs should be more accurately kept and speaking of government operation of the mines].—C. Tr. Bull. Dec. 1 1916; p 25; pp 4; 25c.

———. *New South Wales Embarks on Coal Mining Enterprise.* [A state owned coal mine].—Mg. & Engg. Rev. Oct. 5 1916; p 13; pp 1; 35c.

——— *Swedish State Hydro-Electric Power Station at Alfkarleby, Sweden.*—Engg. July 14 1916; p 29; pp 3*; July 21 1916; p 51; pp 8*; 70c.

HISTORICAL

Bacon, Raymond F.; Hamor, William A.—*The American Petroleum Industry.* [In Vol. I the history and geology, etc., regarding oil wells is taken up, while Vol. II is on refining of oil].—McGraw-Hill Co.; books; Vol. I pp 446*; Vol. II pp 517*; $5 each.

Ball, Lionel C.—*Mount Cannindah Copper Mine, Australia.* [The history by years, geology, concentrating and smelting methods are taken up in detail, with production figures].—Queen. Gov't Mg. Jnl. July 15 1916; p 318; pp 6*; 35c.

Best, W.—*Ancient and Modern Construction of Miners' Safety Lamps.* [A paper read to the National Assn. of Coll'y Mng.].—I. & C. Tr. Rev. Nov. 24 1916; p 637; pp 1; 35c.

Blackstone, Richard.—*A History of the Homestake Mine, S. D.* [Abst. from Pahasapa Quarterly. Reviews the progress of the company, mill and mines].—Mg. World July 15 1916; p 99; pp 3¼*; 10c.

Brown, G. Chester.—*Mines and Mineral Resources of Shasta, Siskiyou and Trinity Counties, California.* [Copper and gold are the principal minerals though many others occur in the district].—Calif. Mg. Bur.; pp 192*.

Brown, J. F. Kellock.—*Damascus Steel from Mount Lebanon Iron Ore.* [The geology, transportation and nature of the ores in these remote and ancient mines of Palestine are briefly described].—E. & M. J. Dec. 23 1916; p 1085; pp 1¼*; 25c.

Campbell, H. H.—*The Passing of the Acid Bessemer.* [The phases of its career and an account of its gradual passing].—Iron Age Aug. 10 1916; p 302; pp 2; 30c.

Campbell, H. H.—*Evolution of American Open Hearth Practice.*—Iron Age Aug. 31 1916; p 448; pp 2½; 30c.

Cleland, H. F.—*Geology, Physical and Historical.* [A complete text which might be termed general geology].—American Book Co., N. Y.; book; pp 718*.

Davenport, Frank B.—*The History of a Successful Jig.* [Drawings and description are given].—Coal Age Sept. 23, 1916; p 497; pp 1½*; 20c.

Deustua, Ricardo A.—*La Industria del Petroleo en el Peru Durante 1915.* [A paper read before the Pan-American Congress on the petroleum industry in Peru in 1915].—Inf. y Mem. Soc. Ing. Peru June 1916; p 117; pp 34*; 75c.

De Wolf, William P.—*Reopening Old Mines in Arizona.*—Mg. World Aug. 19 1916; p 329; pp 2¼*; 10c.

Elmore A. Stanley.—*The Invention, Development and Introduction of the Flotation Process.* [A general historical account of the process carrying the method to a point where it was practically introduced].—M. & S. P. Sept. 23 1916; p 449; pp 6½; 20c.

Gahl, Rudolf.—*History of the Flotation Process at Inspiration, Arizona.* [A paper read before the A. I. M. E. dealing in detail with the subject and equipment used].—Met. & Chem. Engg. Oct. 1 1916; p 393; pp 12½*; 35c.

Garrard, A.—*Gas, Oil and Petrol Engines.* [Deals with the history of combustion engines, their construction and

use and the operation of equipment used in connection with them].—Whittaker & Co., London; book; pp 221*; $1.50.

Hoover, Theodore J.—*Concentrating Ores by Flotation.* [Third edition, describing different processes, patents, litigation, history, etc.].—Mg. Mag.; book; pp 320*; $3.75.

Hurley, Edward N.—*Federal Trade Commission and the Mining Industry.* [A paper read before the American Mg. Cong. Brings out the great need of better cost accounting and selling of coal on this basis].—Coal Age Nov. 25 1916; p 887; pp 3; 20c.

Jennings, Hennen; Janin, Charles.—*The History and Development of Gold Dredging in Montana.* [Mostly on the Ruby district. One chapter is confined to placer mining methods and operating costs].—U. S. Bur. of Mines Bull. 121; pp 63*; 40c.

Krebs, Charles E.; Teets, D. D., Jr.; White, I. C.—*County Reports of Raleigh and the Western Portions of Mercer and Summers Counties, West Virginia.* [An account of the geology, mineral deposits and operations].—W. Va. Geol. Surv. Report; pp 778*.

Lewis, R. S.; Ralston, O. C.—*Patents Relating to Oil-Flotation Processes.* [Short descriptions of patents dating from 1879 on are given].—Utah Engg. Experiment Sta. Bull. No. 8; pp 56.

Megraw, Herbert A.—*The Flotation Process.* [On the theory, practice and testing of the process, with descriptions of installed plants].—McGraw-Hill Book Co.; book; pp 249*; $2.50.

Mills, E. W.—*Leading Gold Mining Operations in Korea.* [Abstract of a paper read before the Korean branch of the Royal Asiatic Soc. Deals with the production, operation and history of several concessions in the country].—Mg. World Dec. 9 1916; p 989; pp 1½; 10c.

Ortega, Pablo.—*Boletin De Minas, Cuba.* [Reviews the operations and production of the mines mostly in the province of Pinar del Rio. The nature of the deposits and mines of the various companies are described. Several tables of statistics are given in the concluding pages].—Secretaria de Agricultura, Comercio y Minas, Bull. No. 1; pp 157*.

Parsons, J. L.—*An Office Record System for Civil Engineers.* [Details of methods for filing surveys, literature, etc.].—Engg & Cont. Nov. 29 1916; p 466; pp 4*; 20c.

Payne, F. W.—*Dredging for Minerals: Past and Present.* [From the Mining & Engineering Review, dealing with the operation of various dredging projects of both the past and present in New Zealand, Australia, and the Malay States].—Mg. World Dec. 16 1916; p 1029; pp 1½; 10c.

Reeves, Edward A.—*Surveying Past and Present.* [Describes surveying and mapping which was done during the past and present days, being confined mostly to Europe].—Jnl. Roy. Soc. of Arts. Sept. 22 1916; p 747; pp 17*; Sept. 29; p 765; pp 14*; 70c.

Rickard, T. A.—*The Blue Bell Mine, Riondel, B. C.* [The history and transaction which have taken part in the operating of this old silver-lead-zinc property are told in detail].—M. & S. P. Nov. 25 1916; p 765; pp 2½*; 20c.

Rickard, T. A.—*The Britannia Mine and Mill, British Columbia.* [Details on the mill equipment and operation, with further information on the mine workings and deposits].—M. & S. P. Nov. 11 1916; p 693; pp 8*; 20c.

Ritchings, J. W.—*The Sterling Iron Mines.*—[Follows the mines from 1745 up to the present time].—E. & M. J. Sept. 9 1916; p 474; pp 1¾*; 25c.

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Smith, Watson.—*Early and Modern Coal Mining Methods in Japan.* [From the Jnl. of the Royal Soc. of Arts, being a brief general description of the mines in the country].—C. Tr. Bull. Oct. 2 1916; p 43; pp 1¾; 25c.

Stander, H. J.—*The Flotation Process.* [A text with subjects in logical sequence for the student and others. Various methods are described in detail, methods of testing, costs, practice, etc., are dealt with separately].—Mining World Co.; book; pp 175*; $3.

Sterling, E. A.—*Timber for Structural Purposes.* [A general talk on timber and its uses].—National Lumber Mfg. Assn. Jan. 1916; pp 20; 35c.

Yeatman, Pope.—*Mine of Chile Exploration Co., Chuquicamata, Chile.* [A paper read before the Pan-American Sci. Cong. The history, geology, reserves, power plant and testing of hydrometallurgical treatment of the ores are included].—Teniente Topics Aug. 1916; p 1; pp 18*; 35c.

Zimmer, G. F.—*The Use of Meteoric Iron by Primitive Man.* [A paper read before the Iron and Steel Inst., London].—I. & C. Tr. Rev. Sept. 22 1916; p 337; pp 5*; 35c.

——— *History of the Carbide Mine Lamp from the Earliest Days to the Present Time.*—Acetylene Jnl. Dec. 1916; p 303; pp 1½*; 20c.

——— *Inspiration, History of Its Flotation Process.* [Discussion of a paper by Rudolph Gahl].—Bull. A. I. M. E. Nov. 1916; p 1879; pp 18; 35c.

SCHOOLS AND SOCIETIES

Armstrong, L. K.—*Columbia Section, American Institute of Mining Engineers.*—Mg. World Dec. 9 1916; p 995; pp 1; 10c.

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McCullough, Ernest.—*The Engineering Society, Its Past, Present and Future Activities.* [A general talk on societies, what they are, have been and should be].—Jnl. West. Soc. of Eng. Oct. 1916; p 697; pp 12; 35c.

Parsons, F. W.—*The Rocky Mountain Coal Mining Institute Meeting.*—Coal Age July 8 1916; p 66; pp 6*; 20c.

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——— *A. I. E. E. Convention at Seattle, Wash., Sept.* 4 1916.— Jnl. of Elect. Power & Gas Sept. 16 1916; p 222; pp 5*; 35c.

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———.— *American Electrochemical Society, New York Meeting, Sept.* 27 1916.—Met. & Chem. Engg. Oct. 1 1916; p 381; pp 3½; 35c.

——— *American Electrochemical Society, New York Meeting.*—Met. & Chem. Engg. Oct. 15 1916; p 475; pp 5¼; 35c.

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——— *American Mining Congress, Nineteenth Annual Meeting.* [Held in Chicago Nov. 13 to 16, 1916].—Mg. World Nov. 25 1916; p 903; pp 12¼; 10c.

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——— *Canadian Society of Civil Engineers.* [Includes an address on "The Engineer in Canada"].—Canadian Eng. Nov. 30 1916; p 435; pp 2; 35c.

——— *Canadian Trade Index.* [Com-

panies are classified alphabetically and according to materials they handle].—Canadian Mfg. Assn., Toronto; pp 560; $5.

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——— *Chilean Congress of Mining and Metallurgy.*—Teniente Topics July 1916; p 2; pp 9½*; 35c.

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——— *Institution of Mining Engineers.* [Annual meeting at Glasgow Sept. 14].—I. & C. Tr. Rev. Sept. 22 1916; p 356; pp 1½; 35c.

——— *Iron and Steel Institute.* [Autumn meeting in London].—I. & C. Tr. Rev. Sept. 22 1916; p 335; pp 2; Sept. 29; p 382; pp 2; 70c.

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——— *University of Illinois, Dedication of the New Ceramic Building.* [Outline of the address made].—B. & C. Rec. Dec. 19 1916; p 1094; pp 3½; 35c.

FINANCIAL

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Wagner, William.—*Coeur d'Alene Mining Information.* [Financial statements of the larger companies are given and production and value thereof for the smaller ones. Brief separate accounts of each company in the district are also given].—Wagner, Wallace, Ida.; book; pp 174; $4.

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MISCELLANEOUS GENERAL

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in heavy timber].—West. Engg. Oct. 1916; p 385; pp 9*; 20c.

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Ingalls, W. R.—*The Business of Mining.* [An address to the School of Mines, Missouri, reviewing things and ideas in the practical or business field of the industry].—Missouri School of Mines Bull. June 1916; pp 20.

Manning, Van H.—*What the Bureau of Mines in the Department of Interior Is Doing and Hopes to Do for the Metalliferous Mining Industry.*—Mg. Cong. Jnl. Oct. 1916; p 103; pp 9; 35c.

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Moore, H. F.; Wilson, W. M.—*Strength of Webs of I Beams and Girders.* [Gives the results of many tests, and formulas are reviewed].—Univ. of Ill. Bull. 86; pp 50*.

Nickles, John M.—*Bibliography of North American Geology for* 1915. [Besides the bibliography there is a cross index by subjects, states and countries and materials treated on].—U. S. G. S. Bull. 645; pp 144.

Park, James.—*A Text Book of Practical Hydraulics.* [A college text and reference for practical engineers].—J. B. Lippincott; book; pp 284*; $4.

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Turneaure, F. E.; Johnson; Bryan.—*Theory and Practice of Modern Framed Structures.* [Deals mostly with proportioning the members after the stresses are known and will be of most value to the student].—John Wiley & Sons; book; pp 486*; $4.

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Wood, George McLane.—*Reports on Mining Districts—General Suggestions.* [Abst. from a paper of a similar title written for use in the U. S. G. S. being a guide for the correct way to write reports].—M. & S. P. Sept. 30 1916; p 499; pp 4; 20c.

——— *Annual Report by the Director of the Bureau of Mines to the Secretary of the Interior for the Year Ended June* 30, 1915.—U. S. Bur. of Mines Report; pp 106*.

——— *Conditions in Mexico.* [A general review of the country during wartimes, both past and present].—M. & S. P. July 15 1916; p 88; pp 4*; 20c.

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——— *Remarkable Metal Flumes Built in the West.*—Mg. World Oct. 14 1916; p 669; pp 1¾*; 10c.

——— *Southern Fertilizer Association.* [Proceedings of the Tenth Annual Meeting at Atlanta, Ga.].—American Fertilizer Nov. 25 1916; p 21; pp 2½*; 25c.

——— *The Labor and Capitol Problem.* [An abstract from the monthly circular of the National City Bank].—E. & M. J. Oct. 1916; p 738; pp 3; 25c.

AUTHOR'S INDEX.

A

Abady, Jacques..... 176
Abrams, D. A.....91, 179
Adams, Maxwell..... 139
Addicks, Lawrence.....32, 33, 149, 158, 159, 164, 179
Aichino, Giovanni.....63, 143
Alderson, G. F.....109, 176, 193
Alderson, M. W.....8, 13, 100, 103, 113, 126
Allen, Andrew..... 75
Allen, E. T.....10, 35, 154, 182
Allen, Glen L.....34, 41, 47, 141
Allingham, John.....146, 147
Anderson, Carl.....154, 157
Anderson, R. J.....139, 149, 160
Andrews, E. C.....1, 62, 143
Anrep, Aleph.....1, 82, 129, 155
Antisell, F. L.....33, 158, 160
Arbogast, C. O..... 90
Armstrong, L. K..... 191
Arndt, R..... 88
Arnold, C. E..... 115
Arnold, Ralph.....85, 88, 188
Arnou, G.....58, 68, 179, 185
Arthur, W.....58, 160
Ashworth, James.....52, 56, 57, 110, 129
Atkinson, H. J.....72, 106
Austin, W. R.....13, 103
Avery, Paul W.....151, 179
Ayer, Frank.....103, 115, 170

B

Bacon, Raymond F....1, 85, 89, 104, 115, 189
Bain, H. Foster....20, 115, 126, 127, 176, 193
Baker, David F..... 56
Baker, H. W.....121, 123
Bakin, H. M..... 59
Balcomb, J. C.....104, 105, 109, 115, 126, 170
Ball, Lionel C.....1, 13, 21, 33, 35, 60, 62, 63, 85, 129, 143, 160, 189
Ball, Max W.....85, 88, 186, 188
Ball, Sydney H.....1, 40, 42, 43, 48, 100, 103, 104, 118
Balliet, Letson.....107, 166, 193
Bancroft, J. Austen.....1, 43, 48, 60, 66, 95, 129, 143, 160
Barbour, P. E..... 191
Barnes, Alfred A.....58, 115
Barnett, V. H.....1, 74
Bartels, Berg.....13, 21, 27, 28, 40, 44, 129
Barton, Donald C.....1, 8, 10
Bastin, Edson S.....13, 96, 129
Bateman, E..... 111
Bearce, H. W..... 85
Beecher, Milton F..91, 101, 102, 105, 117, 183
Becker, A. J..... 53
Belaiew, N. I.....53, 179
Belchic, George.....42, 139, 142, 179, 183
Bell, M. L.....90, 163, 182
Bell, Robert N.....13, 27, 40, 44, 45, 49, 143, 147, 160
Best, W.....107, 125, 189
Benedicks, Carl.....53, 179, 185
Bissett, W. J..... 125
Blackstone, Richard.....13, 17, 121, 137, 146, 147, 189
Blackwelder, Eliot.....1, 8, 10, 70
Blake, A. F..... 79
Blake, John M..... 10
Blake, K. B.....54, 59, 68, 181
Blakeley, A. G.....72, 172
Blatchford, A. S..... 77
Blickenderfer, F. C.....33, 137, 149, 180
Bowron, Charles E..... 173
Bradley, George.....137, 147
Blood, Clifford C.....22, 30
Blum, William.....68, 152, 155
Boardman, Charles S.....108, 125
Bocking, F. W.....47, 160
Boericke, W. F..... 101
Bonillas, Y. S.....1, 8, 10, 35, 152
Boulton, W. S.....1, 72, 85, 103, 129
Bowie, C. P.....80, 85
Bowles, Oliver.....10, 93, 100, 104, 112, 128
Bradley, Walter W.....1, 11, 13, 15, 17, 19, 30, 33, 43, 61, 70, 77, 86, 88, 95, 143, 160
Branson, E. B..... 1
Brantly, J. E.....90, 92, 93, 114, 137, 160
Brearley, A. W.....53, 185
Bregman, A.....33, 160
Brennan, Thomas.....72, 115, 121
Bretherton, S. E.....47, 158, 164, 165
Brett, A. J..... 125
Brinsmade, Robert B.....13, 30, 40, 45, 143
Bristol, J. J.....13, 118
Broderick, T. M.....8, 10, 70, 152
Brokaw, Albert D.....1, 85, 185
Broniewski, M. Witold.....36, 49, 58, 66, 185
Brooks, Alfred H.....1, 2, 10, 13, 19, 21, 22, 27, 30, 35, 37, 38, 59, 60, 66, 72, 80, 105, 129, 186
Brothers, Charles S.....100, 186
Brown, G. Chester.....14, 15, 19, 30, 70, 86, 88, 95, 115, 129, 189
Brown, J. F. Kellock.....2, 52, 77, 79, 103, 108, 120, 166, 176, 189
Browne, P. W.....30, 52, 129
Browning, Philip E.....53, 63, 68, 70, 71, 94, 152, 155, 159
Bryan, R. R.....17, 20, 147, 160
Bryson, Thomas..... 101
Buck, A. M.....121, 154, 166, 173, 176
Buck, W. A.....120, 179
Budge G. D..... 77
Buffum, F. D.....106, 110, 170
Bullard, E. W..... 107
Bullens, Denison K.....54, 185
Burbank, S. R..... 167
Burch, H. Kenyon.....30, 112, 120, 121, 123, 137, 138, 139, 143, 166, 170
Burchard, Ernest F.....52, 54, 90, 97, 129
Burdick, A. J.....2, 10
Burr, K. M.....82, 125
Burr, Robert B.....59, 89, 163, 183
Burrell, G. A.....77, 105, 110, 156, 192
Burroughs, William G.....75, 91
Burrows, A. G.....2, 14, 17, 19
Burton, George E..... 101
Butler, B. S.....14, 21, 23, 26, 27, 30, 38, 43, 44, 49, 129, 130

C

Cady, Gilbert H.....2, 72, 74, 103, 188
Caesar, G. V.....27, 36, 160, 185
Cain, J. R.....54, 58
Cain, William.....123, 194
Calkins, F. C.....2, 8, 62, 67
Cameron, W. E.....72, 85, 88
Campbell, C. M..... 121
Campbell, Edward D.....54, 90, 166, 180
Campbell, F. W.....72, 118
Campbell, H. H.....56, 189
Campbell, M. R.....79, 103
Campbell, William.....36, 49, 58, 66, 69, 185
Canby, R. C..... 139
Canfield, George H.....2, 14, 30, 130, 170
Cantrill, T. C.....2, 74
Capps, Stephen R.....2, 14, 19, 26
Capron, W. C.....120, 166, 170, 172, 178
Carbonnel, A.....29, 30, 38, 60, 67, 130

Carnell, W. C.....54, 58, 94
Carpenter, Jay A.....17, 25, 147, 149
Chace, W. G.....91
Childs, W. H.....80
Chambers, George M.....101, 111
Chodzko, A. E.....170
Chapin, Theodore.....2, 14, 30, 130, 170
Clapp, Charles H.....2, 74, 90, 93
Clapp, F. G.....88
Clapp, H. Howard.....115, 172
Clapp, W. H.....120, 122, 172, 178
Clark, Earl S.....178
Clarke, Thomas C.....80, 172
Clark, Walter C..108, 112, 122, 138, 151, 170
Clark, W. W.....58, 64, 69
Clayton, C. Y.....
..18, 25, 33, 41, 47, 139, 140, 155, 180, 181
Cleaves, H. E.....54, 58
Cleland, H. F.....2, 189
Clennell, J. E.....69, 152, 156
Clevenger, G. H...17, 140, 147, 155, 158, 180
Clyne, C. B.....33, 143
Coghill, Will H.....140
Colby, Wm. E.....187
Cole, Arthur A.....
.....14, 23, 27, 33, 115, 130, 147, 149, 151
Cole, David.....33, 138, 140
Coldham, J. C.....125
Coleman, A. P.....10, 30, 67
Collins, V. B.....76, 104, 166, 170
Comstock, G. F.....36, 54, 69, 180, 185
Conant, J. B.....55, 153, 155, 156
Condict, G. Herbert.....82
Cone, Edwin F.....54, 61
Conkling, Richard A.....85
Connor, E. F.....10
Cook, Paul R.....14, 17, 115, 138, 147, 149
Cooper, Lloyd D.....30, 106
Cooper, M. Stanley...56, 77, 82, 83, 176, 188
Cope, W. C.....106, 183
Copeland, Clem A.....54, 166
Corless, C. P.....193
Corse, W. M.....36, 54, 58, 69, 180, 185
Covitz, Philip.....52, 67, 152, 156
Cowley, John A.....160
Cox, Thomas.....85, 178
Crankshaw, H. M.72, 74, 78, 111, 112, 118, 122
Crawford, C. W.....72, 173
Crider, A. F.....2, 7, 74
Crook, Welton J.....54, 61
Crow, W.....92
Crowley, John A.....149, 158
Cubillo, Leandro.....54, 58, 130, 160

D

Daly, M. R.....2, 85, 88
Daman, Arthur C.....25, 147, 166
Darton, N. H.....2, 90, 93, 98
Daugherty, S. R.....172
Davenport, Frank B.....75, 189
Davidson, Philip.....59, 182, 186
Davies, R. S.....72, 115, 118
Davis, H. E.....14
Davis, W. H.....108, 112
Dickerman, Nelson.....118
Diekman, P.....90, 152
Diller, J. S.....99, 130
Dixon, C. Y.....104, 108, 114, 115, 171
Dixon, E. E. L.....74
De Beque, G. R.....2, 85, 89, 97
De Kalb, Courtenay.....2, 35, 100, 138
De Lummen, Maurice V. M.....47, 160
DeLury, J. S.....2, 7, 10, 19, 20, 46, 62
De Schmud, Hugh S.....2, 95
Deshler, George O.....33, 143
Deustua, Ricardo A.....85, 130, 189
Dewell, Henry D.....112, 118, 151, 193
DeWolfe, E. C.....72, 122, 126, 166, 173
De Wolf, William P.....
.....14, 17, 23, 25, 30, 40, 45, 63, 189
Dolbear, Samuel H.....97, 130
Dole, Richard B.....7
Dominian, Leon.....2, 72, 80, 85, 103, 130
Donaldson, J. W.....54
Donaldson, R. D.....92, 166
Dorman, H. R.....173
Draisbach, F.....95
Drakeley, T. J.....79, 98, 156
Draper, David.....2, 8, 19
Drushel, W. A.....98, 152, 156
Dudley, Boyd, Jr.....163, 180
Duff, J. E.....14, 17, 23, 30, 40, 45, 192
Dunlop, J. P.23, 27, 38, 44, 50, 66, 69, 71, 130
Dunning, C. H.....17, 25, 41, 138, 147, 149
Dunstan, B.....3, 10, 58, 61,
62, 69, 95, 97, 99, 100, 130, 143, 152, 160, 165
Dupare, Louis.....3, 28
Duran, Miguel.....120
Du Toit, Alex L.....3, 85, 89
Dwight, Arthur S.....41, 160
Dwight, H. B.....166
Dynan, John L.....3, 14, 19

E

Eakin, H. M.....3, 14, 19, 70, 113, 115
Eames, Luther B.....17, 147, 149, 180
Eaton, S. Ford.....113, 118
Eddy, Lewis H.....
..14, 17, 97, 108, 113, 120, 138, 140, 160, 184
Edloff, G.....180
Edmands, H. R.....17, 41, 43, 147, 180
Edsall, Henry J.....75
Edwards, C. A.....54, 185
Edwards, J. W.....54, 126
Egloff, G.....80, 81, 85
Eliot, M. E. Yorke.....101
Elmore, A. Stanley.....140, 189
Elston, C. M.....152, 156
Emery, Wilson B.....3, 10
Emley, W. E.....83, 91
Engle, Robert H.....47, 160
Engle, W. D.....68, 152, 156
English, Walter A.....3, 85
Evans, David.....79, 126, 188
Evans, E. C.....77, 181

F

Fahrenwald, Frank A.....58, 62, 63, 185
Fairlie, Andrew M.....94
Farnham, Dwight T.....90
Fath, A. E.....3, 85, 88
Fay, A. H.....
....78, 79, 106, 107, 123, 127, 130, 165, 166
Fear, Thomas G.....75
Fearnsides, W. G.....3, 74
Fechtchenkotchopovsky, S. A.....54, 185
Feild, Alexander L.....160, 180
Ferguson, David.....3, 74
Ferguson, Henry G.....3, 14, 19
Feuchere, L.....8, 10, 34, 152
Figueroa, T.....29, 30, 38, 60, 67, 130
Findlay, D. C.....90, 166
Finlay, James R.....118
Fischer, Sigfried, Jr.....64, 158, 164, 180
Flaherty, B. G.....166, 180
Fleck, Herman.....3, 10, 62, 143, 144, 160
Flynn, F. N.....33, 161
Foerste, A. F.....3
Foote, Frederick W.....149, 178
Forbes-Leslie, William.....3, 86, 89
Ford, W. E.....10, 43
Fortescue, C. Le G.....167
Foster, J. R.....82
Foughy, W. J.....176
Fox, Gordon.....166
Foye, W. G.....8, 10, 52, 67
Freeman, O. W.....92, 96
French, Harold.....52, 100, 116, 152
Frey, W. P.....83, 149
Frood, G. E. B.3, 72, 81, 95, 100, 112, 126, 130
Fulton, A. D.....173, 180

Fulton, Charles H.....
.....14, 27, 36, 43, 49, 137, 151, 165
Futers, T. Campbell.73, 77, 106, 113, 166, 173

G

Gaby, W. E.....10, 20, 36, 108, 147, 171
Gadd, C. J.....79, 83, 161, 165
Gaebelein, P. W.....17, 33
Gage, Victor R.....173
Gahl, Rudolf.....
....33, 105, 138, 140, 144, 166, 176, 180, 189
Galpin, S. L.....86
Gannett, Samuel S.....101
Gardner, E. D.....187
Garrard, A.....172
Garrett, R. E.....5, 87, 88, 132
Garrison, F. L.....193
Gates, A. O.....122
Gawthrop, L. B.....107, 122
Gayford, Ernest.....33, 140
Geismer, H. S.....75, 77, 108, 110, 122, 124
Gerner, G. C.....27, 36, 160, 185
Gilbert, J.....49, 94, 149, 161
Gillette, Halbert Powers.....
.....10, 69, 93, 104, 106, 116, 120, 171, 173
Gillett, H. W.....161, 180
Gilman, R. E.....167
Glenn, L. C.....3, 74
Gochnauer, H. W.....108, 172, 178
Gottschalk, A. L. M.....11, 96
Goudstow, N. T.....53, 179
Gould, Harry J.....91, 178
Gudgeon, C. W.....
..... 14, 17, 63, 116, 138, 144, 149, 155
Guess, G. A.....36, 67, 161, 180
Guignon, F. A.....118, 192
Gustavson, R. G.....68, 152, 156
Graham, J. Ivon.....77
Graham, Thomas 77, 78, 110, 111, 156
Grasty, John M.....52, 97
Gray, F. W.....54, 81, 130
Greaves-Walker, A. F.....91, 105, 175
Green, R. 75, 116, 120, 122, 171
Gregory, S. 140
Grider, R. L. 64, 144
Grossberg, Alexander.....63, 66, 144
Grover, Nathan C.....192
Gruetter, T. W.....29

H

Haas, Frank....77, 83, 167, 172, 173, 176, 178
Habemann, Ing. 124, 125
Hall, Albert E. 106, 108, 112
Hall, John H.....54
Hall, J. W. 54, 56, 161, 185
Hall, R. Dawson.....191
Hallett, R. L. 66, 152, 156
Hamilton, Fletcher.....187
Hamilton, Robert 56, 81
Hamilton, W. R. 86
Hammond, L. D.....67, 158, 164
Hammond, L. M.....101, 109
Hamor, William A.....85, 89, 104, 115, 189
Hanchett, F. B.....33, 105
Hand, J. H.....45
Handy, R. S.....25, 41, 140, 149
Hanst, J. F.....7, 102
Harbord, F. W.....54, 56, 161, 185
Hares, C. J.....3, 86
Harder, Oscar E.....37, 59
Harger, F. D.....91, 156, 181
Harley, Andrew.....56, 185
Harris, H. W.....95, 130
Harris, T. N.....94
Harrington, G. L.....3, 15, 19, 59, 70, 115
Hartmann, M. L.....61, 63, 152, 156
Hawley, F. O.....33, 155, 156
Hayes, J. W.....173
Haynes, Elwood.....58, 68
Hays, Joseph W.....172
Hayward, Carle R.....54, 98, 185
Heath, R. Franklin.....47, 152, 156
Heath, George L.....33, 137, 152, 155
Heal, C.....73, 109
Heikes, V. C.....
14, 15, 20, 21, 23, 24, 38, 40, 44, 50, 130, 131
Heidelberg, Fred M.....37, 105, 122
Hellmund, R. E.....122, 167
Henderson, Charles W.....
.....15, 21, 23, 28, 38, 44, 50, 131
Hennion, Charles.....86
Heinrich, Carl.....69, 161
Herdt, A.....56, 59, 186
Hering, Carl.....153
Herr, Irving.....15, 100, 105, 137
Hess, Frank L.....63, 71, 131, 165
Hesse, Bernhard C.....153
Hewett, D. F.....3, 11, 61, 99, 144
Hibbard, Henry D.....54, 58
Hicks, H. L.....93, 104, 106, 171
Hicks, W. B.....95, 97, 153, 157, 181, 182
Hidgkinson, H. M.....118
Higgins, W. C.....23, 25, 40,
41, 43, 45, 47, 99, 106, 113, 124, 125, 167, 171
Hilderbrand, Joel H.....140
Hill, D. U.....56, 154, 183
Hill, James M.18, 21, 29, 38, 71, 131, 161, 164
Hills, Victor G.....187
Hillen, A. G.....15, 23, 30, 40, 43, 167
Hinds, Henry.....3, 74, 103
Hines, Richard P.....77, 88, 167, 172
Hirshfield, C. F.....173, 174
Hodd, B. B.....37
Hodgkinson, H. H.....40, 45
Hoffman, E. J.....131, 153
Hoffman, F. L.....118, 124
Holbrook, E. A.....75
Hanlin, J. G.....75
Hoover, Theodore J.....138, 187, 190
Hood, B. B.....54, 167, 178
Hood, O. P.....113, 122, 125
Hood, W. W.....77, 181
Hool, G. A.....91
Hopkins, Oliver B.....3, 86, 88
Hopkins, P. E.....2, 4, 14, 17, 19, 98
Hopwood, William.....73, 79, 109, 110
Horrocks, H. E.....112
Howard, L. O.....34, 138, 140, 144, 161, 171
Howe, Charles S.....191
Howe, Henry M.....58, 185
Howland, H. P.....56, 153, 181
Howry, H. M.....147, 163
Hoyt, Samuel L.....37, 49, 58, 66
Hrader, Oscar E.....68
Huac, A. J.....91, 128, 176, 188
Hubbard, Chas. L.....167, 174, 178
Hubbard, J. D.....4, 19, 131
Hubbard, Prevost 93, 181
Huels, Frederick William.....4, 83, 103
Hughes, Ben. 25, 140
Hull, Walter A.....91, 92
Humphrey, D. E.....93, 104, 106
Hunner, H. H.....92, 113, 116
Huntley, L. G..... 4, 9, 86, 100, 104
Hurja, E. E.....15, 30
Hurley, Edward N.....79, 190
Husband, R. H.....75, 122
Hutzel, H. F.....174, 184
Hyde, James M.....140

I

Ichikawa, Shimmatsu.....11, 43, 94, 97
Ingalls, W. R.....47, 94, 158, 161, 194
Irvin, Donald F.....7, 165
Irinyi, Arnold.....83, 153, 161
Iyengar, P. S.....18, 163

J

Jackman, A. N.....101, 118
Jackson, C. 73, 104, 167, 171

Jackson, F. H., Jr.....93, 181
Jakins, G. F..... 101
James, G. M.....69, 161, 180
Janin, Charles.....15, 116, 128, 190
Janssen, W. A.....55, 63, 185
Jeffrey, E. C.....9, 79
Jeffries, Zay.....58, 62, 63, 185
Jennings, Hennen.....15, 113, 114, 116, 128
Jensen, E. B.....153, 156
Jeremiah, Thomas..... 126
Jessup, Douglas W.....4, 48
Jimenez, Carlos P.....
21, 29, 38, 45, 50, 60, 63, 70, 81, 86, 99, 131
Jobke, August F.....144, 167
Johannsen, Albert..... 12
Johnson, Bertrand L.4, 11, 15, 18, 23, 38, 130
Johnson, J. E., Jr.....41, 52, 55, 56,
57, 61, 71, 83, 98, 106, 150, 153, 158, 171, 186
Johnson, Moses.....78, 111
Johnson, R. H.....4, 9, 86, 100, 104
Johnston, A. M.....120, 122, 181
Johnston, John..... 4
Jones, Edward L., Jr.....4, 19, 63
Jones, Jesse L.....58, 61
Jones, Robert W..... 96
Jones, T. R.....138, 181
Jones, W. T..... 127
Jonson, Ernst..... 58
Jorgensen, F. F.....118, 171
June, Robert.....55, 59, 69, 181
Junghann, Dr.....4, 31

K

Kahn, Otto C..... 193
Kalmus, Herbert T.....55, 59, 68, 181
Kapp, Gisbert..... 167
Karr, C. P.....49, 59, 61, 181, 186
Katz, F. J.....94, 95, 98, 131
Kay, Fred H.....74, 103
Keller, J. H..... 174
Kellor, F. A..... 127
Kelley, G. L.....55, 64, 67, 153, 155, 156
Kelley, W. H.....90, 163
Kemble, William F..... 127
Kent, Robert Thurston..... 176
Key, S. Cooper.....19, 103, 126, 127
Kilby, J. N.....55, 57
Kimball, G. H..... 176
King, J. T.....25, 155
Kirkland, H. B.....92, 171
Klingenberg, G..... 171
Knight, Cyril W.....9, 67
Knight, Thomas M..... 106
Knopf, Adolph.....4, 9, 11, 66
Knowles, C. R..... 109
Knox, G.....77, 181
Kobbe, William H..... 86
Koch, Richard.....107, 125, 167
Koepping, Emil D..... 97
Kotze, R. N.....20, 131, 187
Krebs, Charles E.....4, 77, 86, 88, 190
Kuzell, C. R.....120, 166, 170, 178

L

Labbe, Charles.....138, 151
Lahee, Frederic H..... 4
Laist, Frederick.....34, 140, 161
Lakes, Arthur.....4, 9, 40, 43
Lakes, Arthur J.....11, 40, 46, 116
Lamb, F. B.....167, 178
Lamb, Mark R.....34, 66, 138, 146, 161, 174
Laney, F. B..... 140
Lang, Herbert.....4, 19, 29, 100
Landers, W. H.....70, 137, 161, 164
Larson, A. G.....4, 11, 23, 40, 46, 116
Larsen, S. Esper..... 11
Lasier, E. L.....92, 181
Lathe, F. E.....36, 67, 161, 180
Latimer, J. W..... 118
Lathrop, L. A.....79, 127, 131, 193
Lawrie, W. W.....92, 107, 116, 127
Layng, H. R.....60, 153, 156
Leaming, T. H.....70, 156, 167
Leddell, W. A..... 184
Lee, Wallace.....4, 43, 48, 74, 86
Legrand, Charles.....37, 167, 172, 181
Lehfeldt, R. A..... 188
Lehman, George R.....31, 181
Lehr, E. E..... 167
Leonard, R. W..... 68
Lesher, C. E.....73, 80, 81, 82, 121, 131, 179
Leslie, E. H.....63, 89, 144
Lewis, James O.....86, 88, 104, 188
Lewis, J. H.....40, 41, 46, 47, 137
Lewis, Robert S.....116, 140, 188, 190
Lewis, W. K..... 111
Libman, Earl E..... 91
Lilburne, A. S.....18, 144, 146, 147
Lindau, S. Paul.....41, 47, 161
Lishman, G. P.....79, 81
Lisitzin, Fr.....83, 156
Lloyd, John.....78, 125
Lodge, E. S.....95, 137
Loftus, N.....9, 74
Loomis, Albert G.....70, 144
Lomas, Garcia.....41, 158, 161, 184
Lotti, Alfredo.....68, 161
Loughlin, G. F.....26, 43, 93, 132
Louis, Henry.....79, 188
Loveman, M. H.....4, 9, 11, 26, 43, 48
Lowell, F. L.....
.....15, 19, 29, 31, 61, 70, 73, 86, 88, 95
Lucht, F. W., Jr.....171, 181
Lupton, Charles T.....4, 74, 96
Lupton, Arnold.....73, 103
Luscomb, H. T.....167, 174, 178
Lyon, Burt W.....40, 45, 46, 50, 132, 193
Lyon, D. A.....140, 141

M

Mabery, C. F.....11, 86, 153
Machin, W. A.....75, 122
Magnus B.....18, 34, 150, 161
Magnusson, C. E..... 167
Maguire, Don.....31, 35
Mairet, F. F.....79, 188
Mann, F. W..... 176
Mann, Horace T.....18, 25, 155, 181
Manning, Van H.....118, 125, 127, 187, 194
Mansfield, G. R.....4, 95
Marshall, R. B.....101, 102
Mason, F. H..... 94
Mason, J. K.....178, 194
Matheson, A. M.....66, 153, 155, 156
Mathewson, C. H.....37, 181, 186
Mathews, P. L.....79, 116
Matley, H. A.....37, 43, 132
Matson, George C.....89, 101
McArthur, J. D.....79, 188
McBride, D.....20, 37, 194
McBride, Wilbert G.....120, 176, 178
McCarty, Morris.....15, 23
McCaskey, H. D.....70, 132
McCullough, Ernest.....92, 102, 187, 191
McCombie, J.....18, 138, 144, 146, 147, 162
McConahey, W. M..... 167
McCoy, A. W..... 86
MacDonald, B.....148, 164
MacDonald, William.....18, 146
McDonald, P. B....24, 31, 116, 132, 150, 178
McDonnell, C. C.....11, 43
McDowell, J. Spotts.....98, 163, 181
McEoceid, D..... 109
McFeely, George..... 108
McFarland, David F.....37, 59, 68
McGrath, J. W.....4, 52, 73, 103, 116
McGregor, A. G.....34, 120, 137, 162
McHenry, W. E..... 128
McKinney, P. E..... 69
McLaughlin, R. P...5, 15, 19, 70, 86, 88, 95

McLeish, John....55, 132
McMillan, Franklin R....92, 181
McMillan, L. B.... 174
McMurray, W. F....86, 88, 104, 188
Means, C. M....110, 158
Megraw, H. A....140, 141, 181, 190
Mellor, E. T....5, 96
Merica, P. D....59, 61, 186
Merrill, Frederick J. H.... ....5, 19, 31, 35, 63, 86, 91, 138
Mertie, J. B....15, 19, 59, 70, 115
Merwin, H. E....10, 35, 154
Middleton, Jefferson....90, 91, 132
Millen, Patrick.... 76
Miller, Benjamin Leroy.... 5, 7, 9, 11, 15, 18, 24, 26, 27, 31, 46, 52, 60, 62, 64, 65, 66, 67, 97, 99, 111, 117, 119, 121, 123, 144, 146, 148, 149, 164, 170
Miller, H. L.... 109
Mills, E. W....15, 132, 190, 193
Mingaye, J. C. H....81, 82
Minick, I. C.... 167
Mixter, W. G....98, 153, 162
Moffit, Fred H....5, 15, 19, 31
Molesworth, Guilford L....102, 167, 172
Moore, E. S....5, 26, 43, 48
Moore, H. F.... 194
Moore, H. W....31, 106, 167
Moore, Neil Preston....9, 154, 184
Moore, Robert J.... 80
Moore, J. Samuel.... 34
More, N. P.... 12
More, Robert J.... 180
Morgan, Harry J....46, 47, 148, 158, 180
Morgan, G. T....83, 153, 175
Morrison, A. G.... 141
Morrison, C. J.... 176
Morse, E. C.... 158
Morse, Henry E.... 49
Morse, H. W....34, 164, 181
Mossman, R. L....174, 181
Motherwell, William.... 141
Mudd, S. W....31, 34, 46, 47, 70, 97, 132
Mueller, W. A.... 141
Mullen, Patrick.... 76
Murdoch, Joseph.... 11
Murphy, S. J....86, 120, 167
Murray, R. M....31, 116, 119
Musser, H. P....167, 178
Muth, E. G....50, 132

N

Neal, Roy....42, 139, 142, 179, 183
Neal, Walter....25, 61, 144, 148, 149, 164
Nebel, Merle L....79, 182
Neil, Preston.... 36
Nelson, W. A.... 5, 73, 74
Nesbit, C. E....90, 163, 182
Neumann, B.... 95
Nevius, N. J....5, 64
Newman, M. F....110, 174
Newland, David H....5, 46
Newton, G. J.... 168
Nickels, John M.... 194
Norman, Fred....168, 175
Northrup, E. F....59, 168, 182
Norris, R. V.... 78
Northrop, John D....86, 89, 132

O

Oberfell, G. G.... 105
O'Brien, C.... 148
O'Harra, C. C....61, 132
Ohren, D. W....5, 87, 88, 132
Oinouye, Y....9, 99
O'Neill, Haylett.... 174
Orr, Charles T....46, 132
Orr, William G. D.... 127
Ortega, Pablo....31, 38, 52, 61, 87, 132, 190
Osann, B....57, 99
Ower, Leslie H.... 102

P

Pack, Charles....69, 186
Paige, Sidney....5, 20, 26, 35, 43, 48, 52
Painter, Walter....75, 174
Palmer, Leroy A.... 5, 9, 20, 24, 25, 40, 41, 46, 47, 50, 97, 144
Palmer, R. C.... 141
Pannell, Ernest V....69, 162, 168
Park, James.... 194
Parker, D. J.... 108
Parker, S. M..18, 138, 144, 148, 150, 162, 171
Parlett, R. C.... 180
Parmelee, H. C....47, 141, 144
Parodi, Lorenzo.... 5, 25, 28, 34, 41, 45, 47, 68, 76, 132, 158, 162
Parr, S. W.... ..... 37, 59, 68, 80, 94, 105, 153, 156, 157
Parsons, F. W.... 191
Parsons, J. L....102, 190
Parsons, L. A....31, 68, 104, 116
Paul, C. E.... 194
Paul, James W.... 126
Pawloff, M. A....57, 184
Payne, F. W....16, 66, 68, 114, 190
Payne, Henry M....15, 16, 20, 114, 116, 132
Pearce, Jackson.... 141
Pearce, William....80, 133
Pease, J. H.... 168
Peabody, Ernest H....83, 174
Peffer, E. L.... 85
Pellegrino, John....78, 124
Peltier, M. E....73, 168
Penhoel, L. C.... 141
Peters, Franz....65, 158
Pettibone, C. E....78, 126, 182
Petijohn, Earl....69, 154, 157
Phalen, W. C.....5, 9, 69, 94, 95, 97, 98, 99, 114, 133, 145, 153, 157, 158, 164, 182, 188
Phelps, Charles C....55, 104
Phillips, A. H....11, 48
Pickup, William....79, 127
Pierce, Edwin G....90, 154, 155
Pierce, H. J....170, 188
Pigott, Curtis.... 162
Pilgrim, Earl R....18, 69, 141
Platts, John B....16, 100
Pleschner, O. J....75, 107
Plummer, W. L....16, 18, 138, 145
Pogue, Joseph E....11, 154
Pope, George S....80, 83, 138
Portevin, M. Albert..55, 57, 68, 179, 185, 186
Porter, J. B....80, 154, 182
Porter, L. E.....53, 63, 70, 94, 152, 155
Potter, A. A....120, 171, 179
Powell, J. W....78, 124
Power, Danvers F....18, 25, 47, 148
Poyner, J. M....159, 174
Pratt, Arthur D....162, 174
Price, William B....59, 182, 186
Primrose, H.... 173
Pringle, L. B....141, 182
Probert, Frank H....5, 11, 35, 100
Provot, F. A....5, 36
Pulsifer, H. B....55, 90, 154, 157
Purington, C. W.....5, 16, 96, 114, 116, 146

R

Rain, Allan D....41, 47, 141
Rakuskin, M. A....81, 87, 133
Ralston, Oliver C.....34, 41, 42, 46, 47, 80, 138, 140, 141, 157, 158, 159, 164, 182
Ramsberg, C. J....80, 82
Rawdon, Henry S.....37, 49, 59, 182
Raymond, Miner....76, 194

Reber, Louis E., Jr.....5, 11, 36
Reed, Frank..... 73
Reeves, Edward A.....102, 190
Reger, David B.....6, 87, 88
Reid, J. H.....6, 26, 36, 66, 94
Reifsneider, L. B.....52, 107, 116, 119
Rickard, T. A.....16, 18, 21, 24, 25, 31, 34, 37, 42, 43, 46, 48, 52, 116, 120, 122, 133, 138, 145, 159, 162, 165, 190, 194
Richards, Frank.....177, 179
Richards, J. H.....176, 188
Richards, J. W.....71, 97, 165
Ridge, Fred H., Jr..... 127
Ries, Heinrich..... 6, 20, 27, 36, 43, 49, 74, 87, 89, 93, 94, 96, 98
Rigg, Gilbert..... 49
Ritchings, J. W.....52, 190
Robertson, A.....120, 122
Robertson, A. J.....63, 64, 145
Robertson, J. A. T.....119, 151, 190
Robinson, Heath M....6, 9, 99, 133, 145, 182
Robertson, L. W.....105, 192
Robins, Hallet R.....34, 120, 139, 141, 150
Roche, Thomas F.....31, 34, 120, 145, 162
Roesler, Max.....6, 9, 11, 52
Rogers, Austin F.....9, 11, 36, 37
Rogers, A. P.....120, 194
Root, W. A.....24, 40, 145, 168, 171, 190
Rossback, N. J...92, 104, 107, 109, 111, 171
Rosa, E. B.....168, 182
Rose, C. A.....34, 159, 164
Rose, Hugh....6, 16, 18, 24, 25, 107, 113, 116, 125, 137, 139, 141, 148, 159, 162, 168, 182
Rossman, L. A.....52, 53, 145
Roux, G. P..... 168
Ruhl, Otto..... 49
Runner, J. J.....6, 11, 62, 64, 157
Ryan, Edward.....21, 28, 38, 45, 124, 137

S

St. John, H. M.....59, 159
Saint-Smith, Cecil E....6, 24, 31, 63, 66, 67
Sale, A. J.....31, 104, 155, 162, 179
Sampson, R. J.....73, 111
Samuel, J. Moore.....162, 182
Sanner, F. C..... 102
Sargeant, E. W.....109, 114
Sauveur, Albert.....55, 69, 186
Sayre, Edward A.....73, 107, 112, 117
Schaller, Waldemar T.....6, 11, 96, 97, 133
Schaporst, W. F..... 177
Schiefer, H. V.....76, 82, 113, 121, 174
Schirmeister, H.....59, 69
Schlundt, Herman.....70, 144, 156, 167
Scobey, Fred C.....115, 151
Schmidt, Frederick..... 107
Schramm, E.....54, 56
Schrader, Frank C.....6, 20, 21, 133
Schroeder, J.....11, 154
Schwarz, A.....141, 187
Schuchert, Charles..... 6
Schultz, Alfred..... 8
Schultz, J. E. M.....93, 171
Scott, David B.....31, 112, 119, 122
Scott, Harry E.....113, 125
Scott, Herbert K..... .....6, 62, 103, 117, 119, 145, 150, 190
Scott, W. A.....6, 16, 18, 20, 22, 24, 25, 29, 31, 32, 34, 40, 41, 42, 46, 48, 64, 107, 109, 110, 113, 122, 139, 141, 145, 146, 148, 155, 159, 164, 168, 173
Searls, R. M..... 187
Seede, J. A..... 168
Sellards, E. H.....9, 96
Seibert, F. M..... 156
Shafer, C. W..... 173
Shaw, Edmund N.....137, 149, 155
Shaw, Eugene W.....6, 89, 101
Shaw, Wm.....78, 111
Sheldon, Walter H..... 179
Sherwin, R. A..... 92
Sherwin, P. M.....7, 73, 74
Shellshear, W..... 18, 34, 39, 43, 49, 53, 139, 141, 145, 150, 182
Sherry, Ralph H.....55, 186
Silsbee, Francis B.....155, 168, 182
Sherwood, C. F.....26, 42, 48, 141
Sherwood, R. G.....59, 168, 182
Shiras, Thomas..... 46
Shumway, Ralph W.....73, 81, 133
Sweely, B. T..... 90
Sibley, Robert.....16, 114, 168
Sidener, C. F.....69, 154, 157
Siebenthal, C. E.....45, 50, 133
Simmons, Theodore.....7, 102
Simons, Theodore.....171, 182
Simpson, F. L. G.....53, 73, 112, 117, 155
Simpson, G. S.....63, 70, 94, 152
Sims, Clarence E.....42, 159, 164, 182
Singewald, Joseph T., Jr.....5, 7, 9, 11, 15, 18, 24, 26, 27, 31, 32, 46, 52, 60, 64, 65, 66, 67, 97, 99, 107, 111, 117, 119, 121, 133, 144, 146, 148, 149, 164, 170
Sisley, George E...21, 27, 37, 44, 45, 49, 193
Skowronski, S.....158, 160
Sleeth, S. D..... 59
Smeeth, W. F..... .....7, 16, 18, 20, 53, 62, 133, 162, 163
Smith, C. H., Jr.....9, 98
Smith, E. A.....50, 134
Smith, E. B.....83, 93
Smith, G. H.....92, 116
Smith, George Otis.....80, 121, 179, 189
Smith, H. H.....142, 183
Smith, Howard D.....114, 146, 147
Smith, Le Baron..... 122
Smith, Lowry.....112, 188
Smith, Philip H.....171, 173
Smith, R. E.....16, 114, 116, 146
Smith, R. W.....18, 141
Smith, Sumner S.....16, 83, 114
Smith, Warren D..... 87
Smith, Watson.....73, 190
Snyder, B. M..... 142
Sohnlein, M. G. F.....67, 146
Spaulding, C. F..... 148
Speed, F. B., Jr.....41, 46
Spencer, Arthur C.....7, 11, 20, 134
Spencer, S. R.....71, 68, 152
Spilman, C. F.....16, 150
Spurr, J. H.....9, 20, 27, 36, 43, 49
Staley, Homer F..91, 101, 102, 105, 117, 183
Stander, Henricus J..... .....34, 94, 142, 149, 159, 183, 190
Stannard, O. J.....67, 150, 154, 162, 164
Stansbie, J. H.....162, 183
Staples, Ernest H.....7, 74
Stansfield, J.....7, 91
Stead, J. E..... 37, 55, 57, 62, 67, 68, 71, 98, 99, 162, 183
Stebinger, Eugene.....7, 87
Steidle, E.....108, 126
Steiger, George..... 11
Stephenson, Lloyd W..... 7
Sterling, J. T.....78, 126
Sterling, E. A..... 190
Steuart, D. R..... 89
Still, C..... 82
Stillman, A. L.....80, 149
Stone, G. S.....44, 49, 51, 55, 69
Stone, J. P.....171, 174
Stone, Ralph W.....90, 93, 96, 134
Storms, William H.....7, 101
Stratford, C. W..... 87
Streeter, Robert L.....168, 174
Strong, William.....69, 97, 159, 170
Swindin, Norman.....55, 94
Symons, S. W.....77, 104, 171

T

Taber, Stephen.....9, 12, 95
Taggart, Arthur C.....146, 174, 176
Taggart, Arthur F.....59, 155, 183
Tallant, J. D.....32, 112, 117

Tally, Robert E.....32, 111, 119
Taylor, Guy B.....106, 183
Taylor, M. T.....16, 107, 109, 177
Taylor, W. G.....87, 104, 168
Teets, D. D., Jr.....4, 77, 86, 88, 190
Tenney, J. B.....1, 8, 10, 35, 152
Thalheimer, E. M.....37, 181
Thornton, W. M.....183
Thiele, H. G.....107, 112
Thompson, G. W.....44
Thompson, J. W.....187
Thompson, L. S.....48, 103, 104
Thompson, M. De Kay.....37, 94, 155, 159
Thompson, N. J.....37, 94, 155, 159
Thomson, Herbert G...26, 139, 148, 150, 168
Thomson, Leslie R.....168, 177
Thornton, W. M....50, 70, 108, 110, 154, 168
Thum, E. E.....32, 128, 150, 162
Tillson, B. F.....104, 109, 117, 172
Ting, V. K.....73, 103
Tobelmann, H. A.....34, 164, 181
Tompkins, Norton.....78, 110
Toso, Pietro.....7, 89, 99
Touceda, Enrique.....55, 186
Tournay-Hinde, A. W.....42, 162, 172
Trapp, C. H.....169
Trautschold, Reginald.121, 122, 150, 176, 179
Trewartha-James, W. H.....137
Tschishewsky, N.....56, 59, 186
Tucker, W. B.....7, 20, 32, 53, 95, 121
Turnbull, J. M....137, 150, 162, 165, 193, 194
Turner, W. A.....64, 65, 71, 94, 154
Twomey, T. J.....80, 180

U

Uglow, W. L.....7, 43, 46
Uhler, Horace S.....71, 159
Ulbricht, T. C.....173
Underwood, Julius.....156

V

Van Name, R. G.....56, 154, 183
Van Tuyl, Francis M.....9, 12
Van Velzer, H. L.....42, 142, 183
Vail, Richard H.....34, 36, 42, 163
Varadaiya, M.....101, 187, 188
Verne, C. E.....45, 50, 134
Vivian, Arthur C....7, 99, 101, 146, 164, 168
Von Bacho, F.....60, 154, 157

W

Wade, Arthur.....7, 42, 89, 157
Wagner, P. A.....64, 67, 93, 96, 134
Wagner, William..28, 36, 44, 49, 117, 134, 193
Walker, Edward.....48, 163
Walker, Sydney F.....76, 108, 123, 169
Wallace, R. C.....7, 20, 36, 46
Warden-Stevens, F. J.....75, 76, 121
Warren, H. M.77, 104, 109, 113, 123, 169, 172
Watkins, J. A.....57, 126
Watkins, Joel H.....7, 8, 62
Watkinson, W. H.....173, 183
Watson, T. L.....12, 154, 157
Watts, A. C.....8, 73, 74, 112
Watts, A. S.....12, 95, 101, 105, 146, 183
Way, Herbert.....8, 20, 24, 27, 36, 89, 98
Way, W. L.....8, 20, 24, 27, 36, 89, 98
Webb, W. B.....73
Webber, Morton.....105
Weber, Heinrich.....78, 124
Weeks, Walter Scott.....16, 102, 114
Wegemann, Carrol H.....89, 101
Weidman, Samuel.....8
Weigel, W. M.....107, 125
Weimbren, M.....119
Weinshenk, Ernest.....12
Wells, Arthur E.....71, 154
Wells, Roger C.....12, 97, 183
West, John.....90
Westling, H.....63, 154, 157
Weston, E. M.....16, 104, 106
Wheeler, R. V.....108, 125, 169
Wherry, Edgar T.....12
Whitaker, W. A.....42, 48, 142, 183
White, A. E.....174
White, H. A.....26, 148, 154, 183
White, I. C.....4, 77
White, Joseph H.....126
White, K. D.....74, 103
Whiting, M. A.....166
Wiard, E. S.....140, 151
Wiggi, A. E.....34
Willcox, Fred H.....125, 126, 163, 183
Wilkins, F. Trevor.....173
Williams, R. Y.....78, 111, 117
Williamson, E. D.....4
Willis, Charles F.....32, 191, 194
Wilson, A. W. G.....
.....37, 50, 68, 103, 117, 130, 134, 163, 165
Wilson, E. B.....75, 123
Wilson, Herbert M.....79, 127
Wilson, P. D.....32, 112, 117, 119
Wilson, W. M.....194
Winchester, Dean E.....8, 87, 89
Wittich, L. L.....8, 41, 42, 46, 48, 146
Wold, Fred L.....59, 89, 163, 183
Wolf, H. J.....64, 146
Wolfe, D.....123, 125
Wolff, J. F.....8, 53
Wolflin, H. M.....126
Wood, Geo. McLane.....194
Wood, H. F.....174
Woodbridge, T. R.....137
Woodward, R. W.....59, 186
Worthing, A. G.....63, 64
Wright, Allen H.....97
Wright, Clarence A.....42, 48, 146
Wright, W. H.....18, 26, 35, 42, 142, 183
Wuensch, C. Erb.....102
Wyer, Samuel S.....89, 193

Y

Yale, Charles G.....
.....16, 22, 28, 39, 45, 50, 99, 134
Yaste, G. L.....102
Yeatman, Pope..8, 32, 36, 103, 164, 169, 191
Young, C. M.....110, 154
Young, George J.....12,
101, 104, 106, 108, 109, 110, 111, 112,
113, 114, 119, 123, 128, 137, 139, 151, 184
Young, Ralph A.....56, 114, 184
Young, S. W.....9, 12, 36, 154, 184
Yuvenalieff, N.....78, 80

Z

Zanetti, J. E.....89
Zies, E. G.....10, 35, 154
Zimmer, G. F.....53, 123, 191

SUBJECT INDEX.

A

Abrasives 94
Accidents in Mines and Mills.....78, 123
Accounts 128
Acetylene Mine Light (see under Lighting) 107
Acids (Mineral) 94
Adits (see under Tunnels).....109
Agitation (see under Cyaniding).....147
Alloys (Non-ferrous) 58
Aluminum 68
Alums (see under Salines)..... 98
Amalgamation 146
Analysis 155
Anthracite (see under Coal)..... 72
Antimony 59
Arsenic 94
Asbestos 95
Assaying (see also under Gold, Silver, Copper, Lead and Zinc).....155

B

Ball Mills (see under Crushing).....137
Barytes 71
Belts and Beltings (see under Haulage and Transport) 120
Bins and Pockets (see under Storage).123
Bismuth 60
Bitumens 89
Bituminous Coal (see under Coal)..... 72
Blast Furnaces 56, 159
Blast-Hole, Drilling (see under Drilling) 103
Blasting 105
Blowers and Fans (see under Ventilation) 110
Boilers and Feed (see under Steam)...173
Bookkeeping 128
Borax (see under Potash)..... 97
Boring 103
Breakers (see under Coal Preparation). 74
Brick 90
Briquetting 149
Bromine 99
Bucket Elevators (see under Transport) 120
By-products 80

C

Cables and Cableways (see under Haulage) 120
Cadmium 51
Calcium Chloride 99
Callium 71
Cars and Accessories (see under Transport) 120
Cement 90
Production 129
Centrifugal Pumps (see under Pumps)..108
Ceramics 90
Charging Furnaces 56
Chemistry 152
Chilean Mills (see under Crushing)....137
Chlorination 149
Chromium 60
Churn Drilling (see under Drilling)....103
Clays 90
Coal—
Accidents 78
Blasting 77
Briquetting 149
By-products 80
Electricity in Mines 77, 176
Conveying 74
Coal (continued)—
Dust 77
Explosions 77
Explosives 77
Fields 72
Fire Damp 77
First Aid 77, 131
Gases 77
Geology 1
Handling 74
Haulage 74
Hoisting 74
Labor 78
Lighting 78
Management 78
Marketing 74
Mechanical Cutters 75
Mine Fires 77
Mines and Mining 72
Mining Accounts 128
Miscellaneous 79
Power in Coal Mines 76
Preparation 74
Production 79,129
Rescue and First-Aid 77, 131
Safety 77,131
Sanitation 77, 131
Screening (see under Preparation).... 74
Signalling 78
Sociological 78
Storage 123
Testing 179
Tipples 74
Transport 74
Ventilation 110
Cobalt 68
Coke 82
Production 129
Combustion Engines 172
Compensation of Workmen (see under Labor) 126
Compressed Air 170
Concentration 143
Concrete 91
Production 129
Conservation 188
Conveyors 120
Copper—
Electricity in Mills and Smelters.....166
Electricity in Mines 166
Geology 35
Leaching 32
Milling 32
Milling Costs 149
Mine Accounts 128
Mines and Mining 30
Mining Costs 115
Miscellaneous 36
Production 38, 129
Refining 32
Smelting 32
Core Drilling (see under Drilling).....103
Costs—
Milling 149
Mining 115
Miscellaneous 178
Crushing 137
Cutters, Mechanical Coal 75
Cyaniding 147

D

Dams (see under Mine Water).....110
Decantation (see under Cyaniding).....147
Diamond Drilling 103
Diamonds (see under Gems)..... 96
Distillation (see under Petroleum)..... 85
Dolomite 99

Drafting 101
Drainage (see under Mine Waters).....110
Dredges and Dredging 113
Drifts and Drifting (see under Sinking and Driving) 109
Drills and Drilling 103
Driving 109
Dust—
Coal 77
Flue 184
Mine 77, 110
Dynamite (see under Explosives).....105

E

Electric Furnaces 53, 166
Electric Motors 166
Electric Smelting (see under Electrometallurgy) 156
Electricity—
Blasting 105
Haulage 112
Hoisting 112
Hydroelectric 170
In Mines and Mills 166
Electrochemistry 154
Electrolysis 156
Electromagnetic Ore Dressing 156
Electrometallurgy 156
Electrosiderurgy 156
Electrostatic Ore Dressing 156
Elevators (see under Conveying).....120
Engines—
Combustion 172
Gas 175
Gasoline 172
Oil 172
Producer Gas 175
Steam 173
Excavators 114
Exploders 105
Explosions in Coal Mines 77
Explosives 105

F

Falls of Ground (see under Supports)..111
Fans, Ventilating (see under Ventilation) 110
Faults (see under Geology)..... 1
Feldspar 95
Fertilizers 95
Filters (see under Cyaniding).....147
Financial 192
Fire Damp 77
First-Aid 125
Flotation 139
Flue Dust 184
Fluorspar 96
Folds (see under Geology)..... 1
Fuel Briquetting 149
Fuels 72
Miscellaneous 83
Fumes 184
Furnaces—
Charging 53, 163
Electric 53, 163
Fume, Gas and Flue Dust 184
Iron and Steel 53
Slag 184
Walls and Lining 163
Fuses 105

G

Gages, Water (see under Pumps).....108
Gas and Flue Dust 184
Gas Engines 172
Gas, Natural 83
Gas Producers 175
Gases, Mine 110
Gasoline Engines 172
Gems 96
General Miscellany ..... —
Generators (see under Electricity).....166
Geology, Mining 1
Gold—
Assaying 17, 135
Amalgamation 17, 146
Electricity in Mills 166
Electricity in Mines 166
Gold Fields 13
Geology 19
Metallurgy 17
Milling 17
Milling Costs 149
Mining 13
Mining Accounts 128
Mining Costs 115
Miscellaneous 20
Ore Dressing 17
Production 21, 129
Refining 16
Government Ownership 189
Graphite 96
Production 129
Gravel 93
Grinding 137
Gypsum 96
Production 129

H

Handling Coal 74
Haulage 120
Headers (see under Drilling).....103
Headwork (see under Hoists).....112
Heat Treatment of Metals 53, 159
Historical 189
Hoists and Hoisting 112
Hydraulic Mining 115
Hydroelectric 170
Hydrometallurgy 163
Hygiene (see under Sanitation).....126

I

Iron and Steel 53
Foundry and Furnace Practice..... 56
Iron Ores and Mining 52
Production 129
Insurance (see under Sociological).....127

L

Labor in Mines and Mills 126
Lamps 107
Law, Mining 186
Leaching (see under Hydrometallurgy).163
Lead—
Chemistry 41
Electricity in Mills 166
Electricity in Mines 166
Geology 42
Metallurgy 41
Milling Costs 149
Mines and Mining 40
Mining Costs 115
Miscellaneous 43
Ore Dressing 41
Production 44, 129
Refining 1
Legislation, Mining 186
Lighting in Mines and Mills 107
Lignite (see under Coal)..... 72
Lime 92

Lining (Furnace) 163
Locomotives 120
Lubrication (see under Power and Machinery) 170

M

Machinery 170
Magnesite 97
Magnesium 71
Magnetic Ore Dressing (see under Mills and Milling) 137
Management, Mine 126
Manganese 60
  Production 129
Mechanical Coal Cutters 75
Mercury 70
  Production 129
Metallography 185
Metallurgy—
  Copper 32
  Electrometallurgy 156
  General and Miscellaneous 166
  Gold 17
  Hydrometallurgy 163
  Iron and Steel 53
  Lead 41
  Silver 25
  Testing 179
  Thermic 163
  Tin 66
  Zinc 47
Metals and Metal Ores 13
  Testing 179
Meters (see under Power and Machinery) 170
Mica 97
  Production 129
Mill and Milling—
  Accounts 128
  Amalgamation 146
  Bookkeeping 128
  Briquetting 149
  Chlorination 149
  Concentration 143
  Costs 149
  Crushing 137
  Cyaniding 147
  Drying 143
  Flotation 139
  Electricity 166
  Grinding 137
  Lighting 107
  Miscellany 151
  Reduction 137
  Sampling 137
  Sizing 143
  Sorting 143
  Testing 179
  Washing 143
Mine and Safety Lamps 107
Mine Water 110
Mineralogy 10
Mines and Mining—
  Accidents 123
  Accounts 128
  Blasting 105
  Bookkeeping 128
  Boring 103
  Cables 120
  Conveying and Conveyors 120
  Costs 115
  Drafting 101
  Dredging 113
  Drilling 103
  Dust 77
  Electricity 166
  Elevating 120
  Excavators 114
  Explosives 105
  Fire Damp 77
  Gas 110
  Handling Coal 74
  Haulage 120
Mines and Mining (continued)—
  Hoists and Hoisting 112
  Hydraulicking 115
  Labor 126
  Lamps 107
  Legislation 186
  Lighting 107
  Law 186
  Management 126
  Mine Gases 110
  Miscellany 118
  Motor Trucks 120
  Ore Reserves 103
  Pillars 111
  Power and Machinery 166
  Power Shovels 114
  Production 129
  Promotion 192
  Props 111
  Prospects and Prospecting 100
  Pumps and Pumping 108
  Rescue and First-Aid 125
  Safety 125
  Sampling, Ore 105
  Sanitation 126
  Shafts and Shaft Sinking 106
  Signaling 108
  Sluicing 115
  Sociological 127
  Stripping 118
  Stoping 118
  Storage 123
  Stowing 118
  Supports 111
  Surveying 101
  Taxation 186
  Telephones 108
  Timbers and Timbering 111
  Tramways 120
  Transportation 120
  Truck, Motor 120
  Tunnels and Tunneling 109
  Ventilation 110
  Water 110
Mineral Production 129
Mineralogy 10
Mining Costs 115
Mining Geology 1
Mining Miscellany 118
Miscellaneous, General 193
Missed Holes (see under Drilling)....103
Molybdenum 62
Motor Trucks and Tractors 120
Motors (see under Electricity)....166

N

Natural Gas 88
  Production 129
Nickel 67
  Production 129
Nitrates 97
Non-Ferrous Alloys 58
Non-Metals 72, 99

O

Oil Engines 172
Oils (see Petroleum) 85
Ore Dressing—
  Copper 32
  Electromagnetic 156
  Gold 17
  Iron 53
  Lead 41
  Magnetic 156
  Silver 25
  Tin 66
  Zinc 47
Ore Genesis 8

Ore Reserves 103
Ore Sampling 105
Ore Testing 179
Ores and Metals 13, 72
Organization, Business 192
Overwinding (see under Hoisting)....112
Ozokerite 99

P

Peat 82
Production 129
Petrography 10
Petroleum 85
Phosphates 95
Phosphorus 70
Phthisis 131
Pillar Working 111, 118
Pipe Lines (see under Petroleum)..... 85
Pitchblende (see under Radium)..... 70
Placer Mining and Machinery (see also under Gold) 115
Platinum 28
Production 129
Pockets and Bins (see under Storage)..123
Potash (see also Salines) 97
Production 129
Power and Machinery—
Compressed Air 170
Combustion Engines 172
Electricity 166
Gas Producers 175
Miscellaneous 176
Steam and Steam Engines 173
Testing 179
Power Shovels 114
Precious Stones (see Gems)..... 96
Precipitation (see under Cyaniding)....147
Producer Gas 175
Production, Mineral 129
Props, Mine 111
Prospects and Prospecting 100
Pulverizing (see under Reduction)....137
Pumps and Pumping 108
Pyrites 98

Q

Quartz 98
Quicksilver (see Mercury) 70

R

Radio-Actives 70
Radium 70
Reduction 137
Refining (see also under Metallurgy)—
Copper 32
Gold 16
Lead 41
Petroleum 85
Silver 25
Zinc 47
Refractories 163
Rescue Work 125
Reservoirs (see under Petroleum)..... 85
Rock Drilling 103
Rolls (see under Crushing)..... —
Rotary Pumps (see under Pumps)....108

S

Safety in Mines and Mills 125
Safety Lamps 107
Salines 98
Sampling 105, 137, 143
Sand 93
Sanitation 126
Schools, Mining 191
Screening Coal 74
Shafts and Shaft Sinking 106
Shovels, Power 114
Signaling 108
Silver—
Chemistry 25, 152
Cyaniding 25, 147
Electricity in Mills 166
Electricity in Mines 166
Geology 26
Leaching 25
Metallurgy 25
Milling Costs 149
Mine Accounts 128
Mines and Mining 22
Mining Costs 115
Miscellaneous 27
Ore Dressing 25
Ore Genesis 8
Production 27, 129
Refining 25
Sinking and Driving 106
Sizing 143
Skips (see under Hoisting)....112
Slag 184
Slate 97
Slimes (see under Cyanide)....147
Sludge 142
Sluicing 115
Smelting—
Copper 32
Electrometallurgy 156
Furnace Practice 53, 163
Gold 16
Lead 41
Silver 25
Thermic Metallurgy 163
Tin 66
Zinc 47
Soapstone 99
Societies, Mining and Metallurgical....191
Sociological 127
Sorting 143
Steam and Steam Engines 173
Steels 53
Stone 93
Stoping 118
Storage 123
Stowing 111
Strontium 71
Structurals 95
Sulphur 98
Sulphuric Acid 94
Supports 111
Surveying 101

T

Talc 99
Tailings 184
Tanks (see under Storage)....123
Tar 80
Taxation, Mining 186
Technology—
Chemistry and Assaying 152
Metallurgy 156
Mills and Milling 137
Mines and Mining 111
Power and Machinery 166
Telephones, Mine 108
Tellurium 70
Testing 179
Thermic Metallurgy—
General 159
Linings 163
Refractories 163
Walls 163
Thickeners (see under Cyaniding)....153
Thorium 70, 166

Thorium 70
Timbers and Timbering 111
Tin 66
  Production 129
Tipples 74
Titanium 63
Tractors 120
Tramway 120
Transportation—
  Conveyors 120
  Motor Trucks 120
  Rail and Water 120
  Tramways, Cables, etc. 120
Trestles (see under Haulage).....120
Trucks, Motor 120
Tube Mills (see under Crushing).....137
Tungsten 63
  Production 129
Tunnels and Tunneling 109
Turbines (see under Pumps).....108

U

Uranium 64

V

Vanadium 64
Ventilation, Mine 110

W

Wages (see under Labor) 126
Walls (Furnace) and Lining 163
Washing 143
Waste Waters, Disposition 184
Water, Mine 110
Winding (see under Hoisting).....112
Wood Preservation (see under Timber).111
Workmen's Compensation (see under Labor) 126

Z

Zinc—
  Chemistry 47
  Electricity in Mills 166
  Electricity in Mines 166
  Geology 48
  Leaching 47
  Metallurgy 47
  Milling Costs ..... —
  Mine Accounts 128
  Mines and Mining 45
  Mining Costs 115
  Miscellaneous 49
  Ore Dressing 47
  Production 49, 135
  Reduction 47
  Smelting 47

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